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Superintendents Meet at Grand Rapids, Mich.

Grover Keeth, of Marathon Mills, Is Chosen President — Open Forum On "Maintenance and Conservation" Is Big Feature of Convention — Cooperation In Effort To Win the War Is Stressed.

[FROM OUR SPECIAL REPRESENTATIVE]

GRAND RAPIDS, Mich., June 22, 1942—"Maintenance and Conservation" was the basic theme of the twenty-third annual convention of the American Pulp and Paper Mill Superintendent's Association held June 16-18 inclusive at the Pantlind Hotel, Grand Rapids, Mich. All the sessions were exceedingly interesting and it was felt that the convention was decidedly worthwhile by all those in attendance.

The members began arriving Monday and most of them had checked in on that day. The opening session of the convention was called to order at 9:30 o'clock Tuesday morning in the Ball Room of the Hotel Pantlind, with Oscar Stamets, president of the association, presiding. The invocation was delivered by Rev. Earl F. Collins, pastor of the South Congregational Church. Robert L. Eminger, national secretary of the association, read the names of those who had passed away during the year, following which the Rev. Mr. Collins delivered a short memorial.

President's Message

Oscar Stamets then delivered the annual president's message as follows:

As our current association year now draws to a close, I am happy and proud that you have honored me as your president during this 1941-1942 period. Six years ago, I came to Grand Rapids and attended a convention of this association. Much to my surprise, when I left, I suddenly realized I had somehow been injected into office, during what must have been a weak moment on my part. I was far from convinced that I was the man for the office and I am sure of it, now that you have called me back to this city to divest me of the same. It has been a trying year for us all but we have met it fearlessly and without falter, knowing that in the fellowship each of you so generously share, there can be nothing but success and continued progress in our chosen field of occupation. We know further, that we have conducted our activities in such a manner that our strength must be felt in the national and international plan of world affairs.

GROVER KEETH
President

Our industries have undergone changes that have perhaps never been known before; demands have been made upon us which call for added effort and ability; uncertainty has beset us but has been dismissed; even the holding of this convention was in the balance at times but we have risen above all obstacles and will continue to do so if we work together. That is the purpose of this association and every association—that men with vision and

initiative might stand together and lend their individual strength to a common cause.

Splendid Cooperation

It is extremely difficult for me to commend individuals for their services and loyalty since so many of you contributed so much to our program of the year. However, I cannot refrain from mentioning the excellent work of our Secretary-Treasurer, Bob Eminger. I assure you that all of the presidents yet to come will welcome the expert guidance and assistance of one so thoroughly grounded in the work to be done and so willing to do it. Nor could I neglect mentioning the equally fine work of our Field Secretary, George Craigie. Each of you in your positions of responsibility know what it means to have men working with you who are capable and get things done. Such a man is George Craigie and I offer him my thanks for arranging this convention and for the helping hand all along the way.

With each passing year, we point with increasing pride to the *Paper Mill News* as our official organ; as the name of each new member goes on the mailing list, we know that another individual and another branch of our industry is going to benefit materially because of it.

I know I speak for each of you in offering thanks to the American Paper and Pulp Association, whose most recent Past-President, John L. Riegel, is honoring us with his presence at this convention; to the Technical Association of the Pulp and Paper Industry, with whom our association has held several joint meetings this year where the enthusiastic attendance has been evidence enough that the meetings were materially beneficial and popular. Our thanks to the Salesmen's Association of the Paper Industry and the officials of the same, who entertained me at their annual luncheon in New York City in January and who have cooperated so wonderfully with us in every possible way. May this be our testimonial to all of them for the past and at once our plea for the future.

In this moment of bouquet bombardment, may we throw a particularly fragrant one in the direction of our Allied Industrial Affiliates. The manner in which they have strengthened us by increased membership, enthusiasm and direct assistance, I believe has never been equalled in previous years. Thank you A.I.A., may our associations be long and pleasant.

S. G. Blankinship
First Vice President

Raymond S. Barton
Second Vice President

Divisional Cooperation Urged

As I received your invitations to attend your divisional meetings, my first impulse was, of course, to attend them all. However, in the name of balance and common sense, it occurred to me that perhaps my other duties had some priority on my time. Each invitation was naturally a temptation—doubly so because I recalled without effort the excellent times I had at each meeting I was privileged to attend. Therefore, be assured that if your invitations were returned with regrets, they were sincere regrets and not crocodile tears. I sincerely urge each of you to stand behind your particular Division and give it everything you have because the accomplishments of the National Association are merely reflections en masse of the light you cast divisionally.

Thus, you can understand why I say I am happy and proud that you gave me the opportunity of serving such an organization this past year. Now as this convention draws to a close my year as president of the association, any additional burden such an office might have imposed becomes insignificant and the only concern is a sincere hope that your confidence was not misplaced.

Hopes for End to Confusion

My gratitude and thanks to you are exceeded only by my fondest wish that the coming year brings to a victorious ending the strife and confusion which exists in the world today. And as our nation emerges from the conflict victorious, may the light of our association shine brighter than before because we have chosen to stand together and work for a common goal.

Address by Mr. Hayward

As the general conference which started at 10:30 A.M., Ralph A. Hayward, president and general manager of the Kalamazoo Vegetable Parchment Company, and president of the Technical Association of the Pulp and Paper Industry, delivered an address on "The Importance of Pursuing a Program of Conservation of Critical Materials and Some Methods of Procedure for Same." Mr. Hayward, in part, spoke as follows:—

"We must conserve manpower. Many of our mills have already lost many employees to the armed forces. We will lose others. We have many who feel they should be in more active war work . . . those who think the paper industry is not a vital defense effort. We must teach these people that paper is just as necessary as tanks, guns, bullets or airplanes. It plays its part in the whole program.

"It may be necessary to replace many of our younger men with older men . . . men may have to be replaced by women; men may have to be shifted around from one department to another. New ways and means may have to be worked out to do certain things more efficiently.

"We must pay more attention to safety. We cannot afford to have injured workmen. Every injury disrupts organization and production. Elimination of injuries conserves manpower. We must teach our workmen to be more careful . . . not alone for their own sakes, but for the public good.

"Another conservation program is maintenance . . . taking better care of our machinery . . . of everything we use. In our plant we have all our motors fitted to take a certain load . . . when that load is reached our men are instructed not to push the machine beyond this point. It is better to make a few feet less paper than to wear out the equipment.

"Another way we can help in the war effort is to turn our machine tool department over to the making of some needed material. There are many small parts that could be made in these shops. Our plant is working 24 hours a day and we will be very glad to show you what we are doing and how to go about getting work for your own shops. You'll be surprised how this will help in the morale building of your entire plant . . . when men find their shop is taking a definite part in producing war supplies."

The Paper Industry and the War

Mr. Hayward was followed by E. W. Tinker, executive secretary, American Paper and Pulp Association, who spoke as follows on "The Paper Industry and the War":—

Because I have a very vivid recollection of my last meeting with the Paper Mill Superintendents Association and statements I made at that meeting, and because in times of stress it is necessary to understand events and trends, I would like, at this time, to review our situation.

NILES M. ANDERSON
Third Vice President

HOMER H. LATIMER
Fourth Vice President

No industry was more vulnerable than the pulp and paper industry to the impact of the European conflict. The liquidation of Scandinavian exports immediately brought a crisis to the industry. Since that time we have moved from one crisis to another, at least in the public mind, and it is my opinion that the over-emphasis of these crises has had a distinctly negative effect with relation to the defense and war program as well as the industry. This is particularly true because the anticipated crises have, in some instances, never developed.

It can be stated without apology or equivocation that the pulp and paper industry has done its utmost to contribute the maximum on behalf of the successful prosecution of the war.

PULP COMPANIES FIRST TO BE ASKED

Different companies producing pulp were among the first to be asked by Leon Henderson's office not to advance prices beyond those in existence at a certain date. This request was gladly met and has since been complied with.

Early in the days of the National Defense Program tremendous pressure was brought upon the industry to expand production to the utmost and production was stepped up to record proportions in response to this pressure from defense agencies even though the over-time payments required to maintain such production might adversely affect the profit situation of individual companies.

The industry was asked by the Office of Production Management to curtail its use of chlorine and to develop an orderly process in doing so. In cooperation with the proper governmental agencies, this was accomplished and presumably facilitated the operations of the chlorine producers, as well as the maintenance of necessary war supplies.

Over-all machine shop facilities of the pulp and paper industry have, where feasible, been dedicated to the production of war matériel and every effort is being made to expand this use where it will effectively contribute to production.

All of these activities have presented problems to management that have not been easy to solve. However, the fact that the job has been done, and production has been maintained and can be maintained in

the future to meet requirements, unless artificially restricted, in my opinion reflects credit upon the technical and managerial skill within the industry. Certainly it offers convincing evidence that American industry can and will meet any concrete or moral obligation in the successful prosecution of the war.

Cooperation With War Agencies

The Executive Committee and Board of Governors of the American Paper and Pulp Association, as a matter of policy, have directed that every possible step be taken in the interest of cooperating with war agencies. They have further directed that the association do everything that it can within the industry to assist the war program. Necessarily, association work along this line must be educational. Currently, six different committees are actively functioning and spending many hours and days of labor in the interest of rendering every possible assistance.

Traffic Committee

The Traffic Committee of the association maintains current contact with the Office of Defense Transportation and all other war agencies dealing with the transportation problem. The committee has promoted by every means at its disposal the economic use of transportation facilities. Among its other activities at this time, it is developing, in cooperation with the American Pulpwood Association, rules and practices that will result in the most economical use of motor truck transportation. In an advisory capacity, it is presenting the industry's viewpoint, through the association, in connection with the development of Office of Defense Transportation orders.

Pulpwood Committee

The Pulpwood Committee of the American Paper and Pulp Association, operating conjunctively with the American Pulpwood Association, is currently developing factual data with respect to the pulpwood supply situation and factors affecting the supply, that it is hoped and expected will be of value to war agencies and to the industry itself. Only through the use of factual data and intelligent judgment, based upon understanding, can these agencies most effectively promote the quick and successful termination of the war.

Robert L. Eminger
Secretary-Treasurer

George W. Craigie
Field Secretary

Paper Supply Committee

The Paper Supply and Consumer Rationing Committee, with its knowledge of current conditions and the over-all statistical background, has given and will in the future, through the benefit of its judgment and knowledge of current trends, furnish advisory information to the industry, and we hope to governmental war agencies.

Industrial Relations Committee

I have no doubt you are all aware of the activities of the Industrial Relations Committee, and of the information it develops with respect to employment trends, the economical use of man-power in times of stress, and the developmnet of training programs, essential, if the industry is to continue to operate under conditions involving the draining off of considerable percentages of its skilled labor.

The same committee that developed the Dictionary of Paper has undertaken and nearly completed the job of classification of paper on the basis of use, which it is hoped will be of great value from an overall industrial standpoint in permitting and promoting consideration of problems within the industry upon the basis of factual knowledge.

Conservation of Critical Materials

The Association's Committee on the Conservation of Critical Materials, cooperating with TAPPI and your association, has developed, on the basis of the best knowledge within the industry, rules and practices that will result in maximum conservation in the use of materials needed for war purposes and these results will be made available to the industry in the form of printed pamphlets which, if followed in practice, will assure maximum conservation at this time and maximum economy in future times. I particularly commend to the attention of the mill superintendents the need for studying this information and getting it into the hands of the men who operate the machines and who are in a position to contribute the most in the way of concrete results. In this effort I want to express my appreciation for the cooperation of the Paper Mill Superintendents Association and of TAPPI.

Sacrifices Gladly Made

If I have given you some conception of what the industry has done and is doing under the existing

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war economy I shall be happy. From my contacts with the executives in the industry I know that if it means shutting down every mill; if it means the sacrifice of the capital structure of the industry; and if it means the breakdown of businesses built up after years of effort, in order to win this war, these sacrifices will be gladly made. However, to some of us the maintenance of a sound economy behind the war program is essential to the successful prosecution of the war. When the history of World War No. II is written, perhaps this will be one of the lessons learned. Unwarranted prophecies based on an incomplete understanding of actual conditions and the initiation of programs based on these prophecies are right now having serious effects on our industry. I hope and believe that in the future mutual understanding and cooperation will result in a sound approach to the solution of the problems involved. I know that I speak for the entire industry in offering such cooperation to the fullest degree.

Following Mr. Tinker, A. Glenn Amos, staff member of the American Paper and Pulp Association, spoke on "Priorities as Affecting the Paper Industry." Mr. Amos' address is printed elsewhere in this issue.

The meeting then adjourned for luncheon with D. L. Stocker, president and general manager, Michigan Paper Company, Plainwell, Mich., as toastmaster.

J. L. Ritchie, Priorities Chief, Speaks

The Open Forum on Maintenance and Conservation in Pulp and Paper Mills was started with an address by J. L. Ritchie, Priorities Chief, Pulp and Paper Branch of the War Production Board. The topic of Mr. Ritchie's address was "Patch and Pray." "The basic theme of this meeting, 'Maintenance of Conservation'," Mr. Ritchie said, "is to me tangible evidence of the sincerity of purpose of the operating heads of this industry—'Maintenance' in order that the industry may continue to supply an essential commodity for the essential needs of war and civilian supply; 'Conservation' in order that it may contribute to Uncle Sam the far more vital critical materials that are the stuff of which wars are made. The two concepts by design or coincidence, are the keystone and objectives of the Priorities Section of the Pulp and Paper Branch." Mr. Ritchie said that in May 36% of the total number of Priority applications were denied, while the aggregate value of PD-1 and PD-1A applications filed for the first five months of the year were more than $40,000,000, while the applications denied by the Pulp and Paper Branch during the same period were more than $2,500,000. Since August 1941, more than $30,000,000 in applications have been denied. Mr. Ritchie referred to the Information Bulletin No. 12 issued by the Pulp and Paper Branch as the outline of the basic policies of this branch. Mr. Ritchie referred especially to the Fourdrinier wire situation in relation to the critical shortage of copper. In his address, Mr. Ritchie discussed the present situation as relating to machinery and equipment used in pulp and paper mills and

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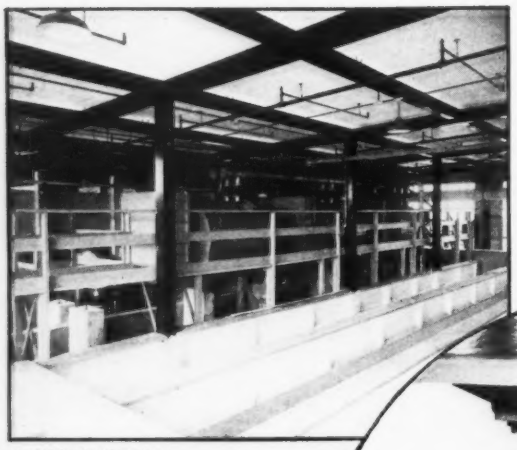

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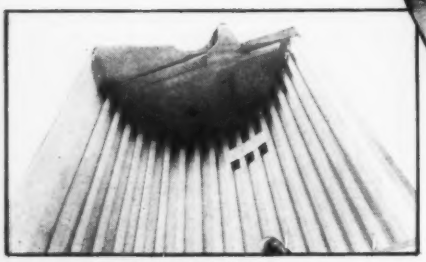
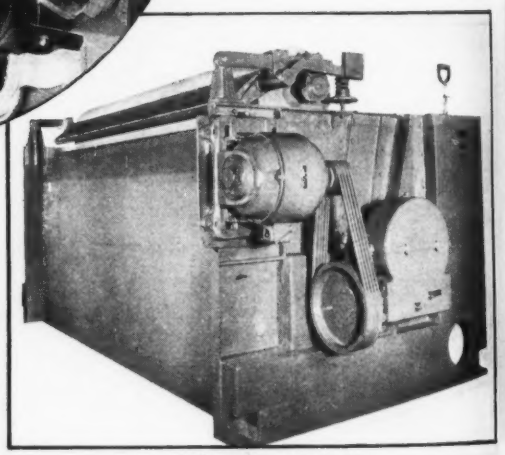


SECTION SHOWING
SWING AGITATOR CONSTRUCTION



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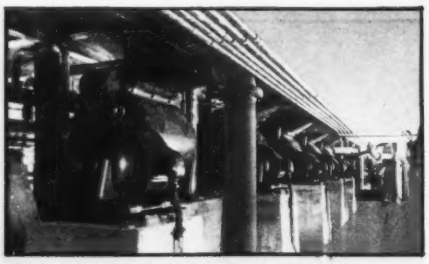
CYLINDER DECKERS



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PCO will meet
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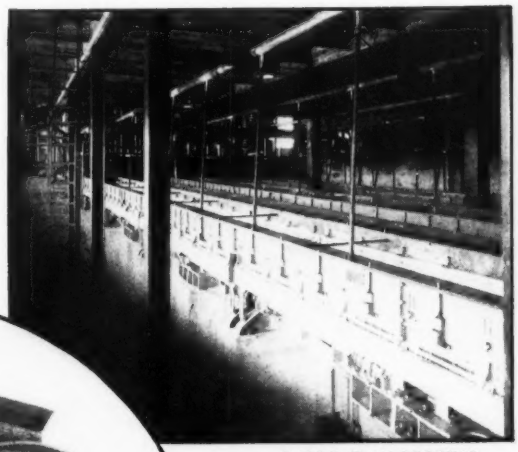

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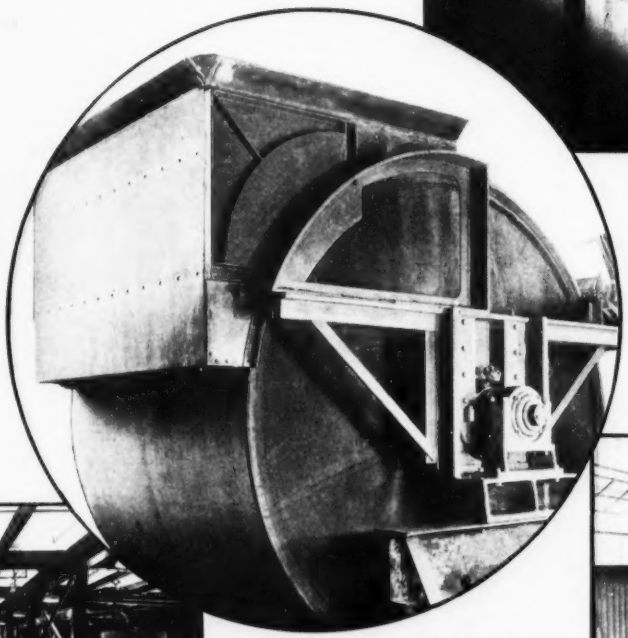
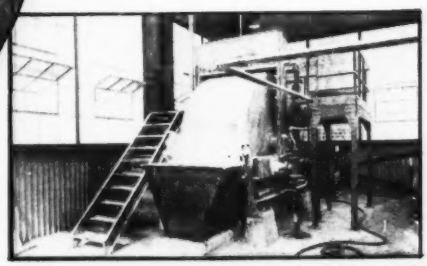
BRONZE VATS DUNBAR DRIVE



THORNE BLEACHING EQUIPMENT



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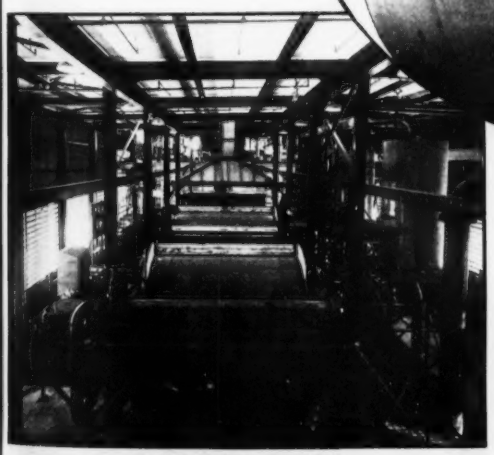

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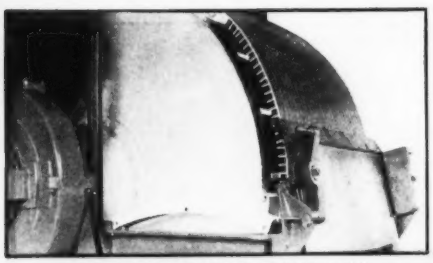
VACUUM WASHERS



SECTION SHOWING REMOVABLE
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stressed the possibility of substitution and conservation.

T. E. Lagerstrom Speaks

The meeting was then taken over by the coordinators, T. E. Lagerstrom of International Nickel Company, speaking for the affiliates, stressed the fact that the main thought of the Forum was to assist the operating men of the paper industry in their task of keeping their equipment in "fighting" trim and to maintain and conserve this equipment. He stated he believed that the Forum would contribute to some practical guidance along the road which would lead to victory. "Our President has called this war a 'survival war' and so it is indeed a fight for the survival of our American ideals and of American industry. The combat units in this 'survival war' know that whether at the battle front or at the production front, during the combat there can be no replacement of their fighting equipment. The offensive of the production front never ceases; its equipment must go on producing, must be kept in fighting trim . . . regardless of conditions."

Earl F. Otto of the Consolidated Water Power and Paper Company, speaking for the superintendents, outlined the procedure for the presentation of the Maintenance and Conservation suggestions by the chairmen of the seventeen committees representing the allied industries and superintendents.

The chairmen of the various committees presented many interesting and practical suggestions for maintenance and conservation and opportunity was given for questions by the delegates present.

Previous to the meeting the delegates were presented with a booklet entitled, "Maintenance and Conservation" which contained presentations of maintenance and conservation recommendations. Separate presentations also were presented to the delegates.

The coordinators consisted of the following:—

For the affiliates—T. E. Lagerstrom, International Nickel Company, New York.

For the superintendents—Earl F. Otto, Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.

Group Chairmen for Affiliates

The group chairmen for the affiliates were:—

Maintenance of Paper Machines—V. S. Dennison, Beloit Iron Works, Beloit, Wis.

Maintenance of Converting Equipment—Walter J. Goettsch, S. M. Langston Company, Camden, N. J.

Maintenance of Refining Equipment—S. H. Jones, E. D. Jones & Sons Company, Pittsfield, Mass.

Maintenance of Pulping Equipment—John H. Noble, Improved Paper Machinery Corporation, Nashua, N. H.

Maintenance of Power Plant Equipment—W. W. Cronkhite, General Electric Company, Schenectady, N. Y.

Conservation of Chemicals—Ralph W. Kumler, American Cyanamid and Chemical Company, New York.

Conservation of Dyestuffs—S. S. Harkavy, Geigy Company, Inc., New York.

Conservation of Inorganic Supplies—Olin W. Callighan, Edgar Brothers Company, New York.

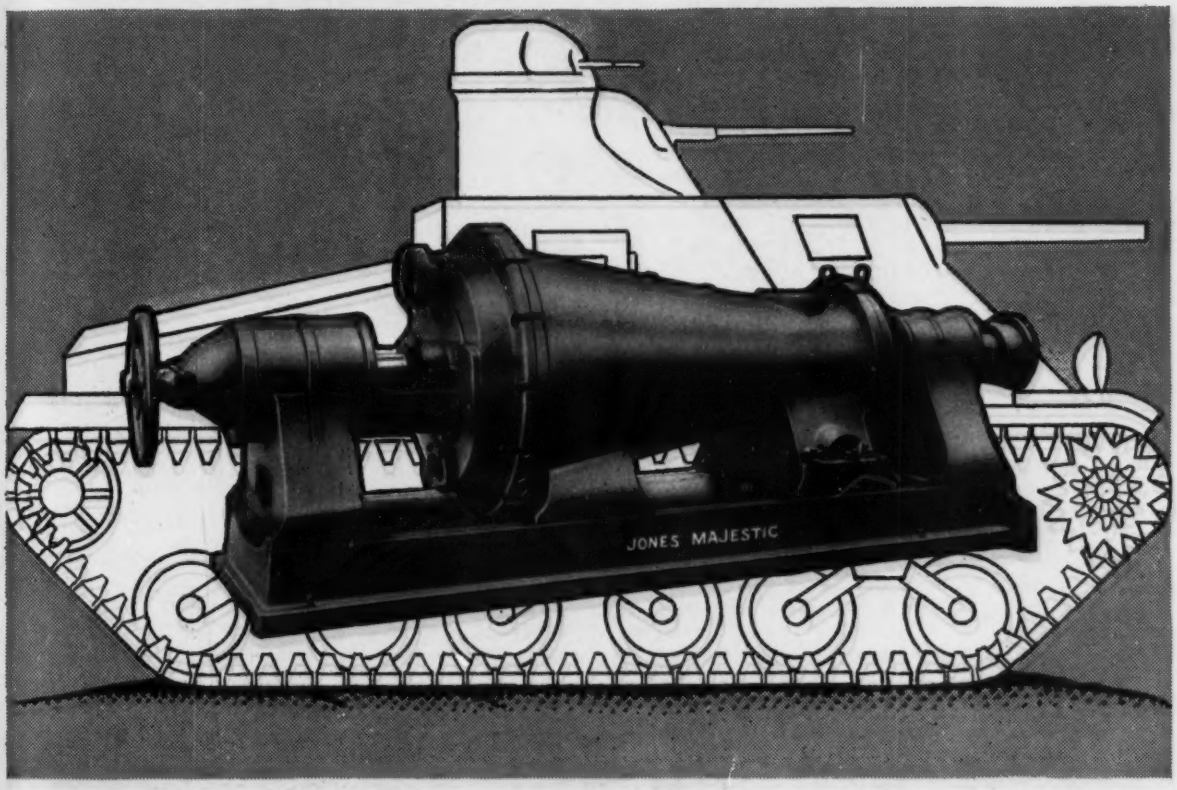
Maintenance of Pumps—John H. Hall, Warren Steam Pump Company, Warren, Mass.

Maintenance of Paper Machine Clothing (Fourdrinier Wires Section)—A. Fred Crossman, Lindsay Wire Weaving Company, Cleveland, Ohio, and Associated Chairman, Harry G. Specht, Eastwood-Nealley Corp., Belleville, N. J.

Maintenance of Paper Machine Clothing (Drier Felt Section)—B. L. Whittier, Mt. Vernon-Woodberry Mills, Baltimore, Md.

LUNCHEON, TUESDAY NOON, CONVENTION OF THE AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION

THE WORK THE NEW JORDAN YOU WANTED IS DOING . . .



Metal for war equipment takes first call today. And we are pouring metal aplenty for just that purpose. Almost our entire productive effort is directed toward producing vitally needed war equipment. Yet, we always are ready to help you with your maintenance and conservation needs within present day limitations, whether for Jordans, Beaters, Screens or Pulpers. Write us your particular problem. We'll try to solve it for you with every resource at our command.

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Builders of Quality Machinery for Paper Mills

Maintenance of Control Instruments—H. O. Ehrisman, Foxboro Company, Foxboro, Mass.

Discussion of Critical Materials—R. T. Barnes, International Nickel Company, New York.

Packing, Insulating and Roofing—J. W. Hemphill, Johns-Manville, New York.

Lubrication—Thomas E. Dial, Socony-Vacuum Oil Company, New York.

Group Chairmen for Superintendents

The group chairmen for the superintendents were:

General Chairman—Oscar Stamets, Riegel Paper Corporation, Milford, N. J.

Board Committee—Ollie W. Messner, Robertson Paper Box Company, Montville, Conn.

Chemical Pulp Committee—Stanford G. Blankinship, Port Royal Pulp and Paper Company, Ltd., New York.

Coated Papers Committee—Loring W. McFail, Oxford Paper Company, Rumford, Me.

Fine Papers Committee—D. J. Walsh, Parker-Young Company, Lincoln, N. H.

Finishing, Storing and Shipping Committee—Orville B. Ziegler, Riegel Paper Corporation, Milford, N. J.

Newsprint and Wrapping Committee—T. E. Kloss, Maine Seaboard Paper Company, Bucksport, Me.

Power and Plant Engineers Committee—Grover Keech, Marathon Paper Mills Company, Rothschild, Wis.

Tissue Committee—R. F. Bennett, Ecusta Paper Corporation, Pisgah Forest, N. C.

Wednesday's Group Meetings

Wednesday morning was given over to group meetings as follows:

BOARD

Chairman—Ollie W. Messner, Robertson Paper Box Company, Montville, Conn.

1. "Plain and Suction Extractor Rolls and their Effect on Wire Life" Pictures.—O. C. Cordes, Sales Manager, Downingtown Manufacturing Company, Downingtown, Pa.

2. "pH Control System on Cylinder Board Machines"—Glen Sutton, Sutherland Paper Company, Kalamazoo, Mich.

Round-Table Discussion on Maintenance and Conservation.

FINE PAPERS

Chairman—D. J. Walsh, Parker-Young Company, Lincoln, N. H. A Series of Ten-Minute Papers.

"Vortraps"—Douglas Robbins, Douglas Robbins & Co., Middletown, Ohio.

"Chlorination in Conservation"—R. B. Martin, Industrial Division, Wallace & Tiernan Company, Inc., Newark, N. J.

"Paper Machine Maintenance"—Charles S. Adams, Assistant Sales Manager, Rice, Barton Corporation, Worcester, Mass.

"Conservation of Felts and Wires Through Scientific Cleaning Methods"—Thomas F. O'Brien, District Manager, Magnus Chemical Company, Inc., Garwood, N. J.

"Conservation by Electroplating"—D. H. Bissell, Assistant Treasurer, Chromium Corporation of America, New York.

"All-Out Maintenance and Substitution Program"—Peter S. Sinclair, President, The Sinclair Company, Holyoke, Mass.

"Maintenance of Clean Paper"—F. K. Becker, Vice-President in Charge of Sales, Bird Machine Company, South Walpole, Mass.

"Care and Use of Paper Machine Felts"—Alfred B. Perlick, Superintendent of Bleaching, Kalamazoo Vegetable Parchment Company, Parchment, Mich.

"Care, Study and Ingenuity Applied to Flat Screens"—Allen A. Lowe, Field Engineer, Sandy Hill Iron and Brass Works, Hudson Falls, N. Y.

"Fine Papers and The War Effort"—B. L. Kessing, Paper Mill Superintendent, Hammermill Paper Company, Erie, Pa.

"Fourdrinier Wires in The War Effort"—H. G. Specht, Vice-President and General Manager, Eastwood-Nealley Corporation, Belleville, N. J.

"Conservation of Paper Making Materials"—Homer T. Latimer, Assistant Mill Manager, Champion Paper and Fibre Company, Hamilton, Ohio.

"Maintenance and Substitutions"—W. F. Hoffman, Superintendent of Manufacture, Fitchburg Paper Company, Fitchburg, Mass.

NEWSPRINT AND WRAPPING

Chairman—T. E. Kloss, Maine Seaboard Paper Company, Bucksport, Me.

TISSUE

Chairman—R. F. Bennett, Ecusta Paper Corporation, Pisgah Forest, N. C.

Round-Table Discussion on Maintenance and Conservation; also on processing problems.

The afternoon was spent on various sports including golf at the Blythefield Country Club and skeet and trap shooting at the Creston Rod and Gun Club.

Wednesday evening a joint dinner was held in the Ball Room of the Pantlind Hotel with V. S. Denison of the Beloit Iron Works as toastmaster. After the presentation of prizes, dancing was enjoyed during the remainder of the evening.

Thursday's Group Meetings

Thursday morning the following group meetings were held:

CHEMICAL PULP

Chairman—Stanford G. Blankinship, Port Royal Pulp and Paper Company, Ltd., New York.

Round-Table Discussion on maintenance and Conservation; also on processing problems.

COATED PAPERS

Chairman—Loring W. McFail, Oxford Paper Company, Rumford, Me.

Motion Picture—"Modern Caly Mining Equipment"—Olin W. Callighan, Edgar Brothers, New York, N. Y.

Round-Table Discussion of Maintenance and Conservation; also on processing problems.

FINISHING, STORING AND SHIPPING

Chairman—Orville B. Ziegler, Riegel Paper Corporation, Milford, N. J.

"Paper Mill Skids".

"Car Loading of Skid Paper"—George W. Craigie, Field Secretary, American Pulp and Paper Mill Superintendents' Association.

Round-Table Discussion on Maintenance and Conservation; also on processing problems.

SAVE 4 WAYS ON NEW INSTALLATIONS

NONPAREIL TURBINE OIL

1. Stability Against Oxidation and Sludge.
2. Non-Corrosive. 3. Good Demulsibility.
4. Proper Viscosity Grades.

You start saving money as soon as you *plan* to use Nonpareil in a new turbine installation. Before you even buy a gallon of oil you

● SAVE PLANT SPACE

because you do not need all the tanks and auxiliary equipment usually required for treating oil. Nonpareil stays free from sludge. It is guaranteed in writing against high acidity for the life of your turbine.

● SAVE EQUIPMENT

such as pumps, piping, and tanks that are hard to get at this time. You will not need these because Nonpareil requires only simple filtration or centrifuging to keep it free from foreign deposits.

● SAVE INVESTMENT

by eliminating the extra batches of oil, as well as the equipment usually required for treating and rest periods.

● SAVE LABOR AND MAINTENANCE

for the life of the turbine. The oil system and governor will never need cleaning because of oil deposits.

Let a Standard Lubrication Engineer tell you how you can save right now by installing Nonpareil in your present equipment. Just write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago, Illinois, for the Engineer nearest you.

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STANDARD OIL COMPANY (INDIANA)

●●LUBRICATION ENGINEERING●●●LUBRICATION ENGINEERING●●●LUBRICAT

PLANT AND POWER ENGINEERS

Chairman—Grover Keeth, Marathon Paper Mills Company, Rothschild, Wis.

"More Steam Without More Boilers"—George H. Urban, Marathon Paper Mills Company, Rothschild, Wis.

Round-Table Discussion on Maintenance and Conservation; also processing problems.

The New Officers

The annual business meeting was held Thursday afternoon with President Oscar Stamets presiding. Reports of the committees, which showed the association to be in a splendid condition in every respect, were presented and the officers were elected for the ensuing year as follows:—

President, Grover Keeth, Marathon Paper Mills Co., Rothschild, Wis.

First Vice President, Stamford G. Blankinship, Royal Pulp and Paper Company, New York, N. Y.

Second Vice President, Raymond L. Barton, Michigan Paper Company, Plainwell, Mich.

Third Vice President, Niles M. Anderson, St. Regis Kraft Company, Tacoma, Wash.

Fourth Vice President, Homer H. Latimer, Champion Paper and Fibre Company, Hamilton, Ohio.

Fifth Vice President, R. F. Bennett, Ecusta Paper Corporation, Pisgah Forest, N. C.

Secretary-Treasurer, Robert L. Eminger.

Field Secretary, George W. Craigie.

Annual Banquet

A joint banquet was held Thursday evening with Glen E. Graham, vice president of the Sutherland Paper Company, Kalamazoo, Mich., as toastmaster. John L. Riegel, president of Riegel Paper Corporation, Milford, N. J., spoke on "Paper in our National Life." This paper is presented elsewhere in this issue.

Oscar Stamets, the retiring president of the association, was presented at the banquet with the Past President's Jewel and the L. D. Post Trophy. A pen and pencil set was presented to J. M. Hemphill, past chairman of the Affiliates and also to T. E. Lagerstrom, retiring chairman of the Affiliates, after which dancing was enjoyed to music by DeForest Poole and his orchestra.

Ladies Program

An enjoyable program was provided for the ladies on Tuesday, Wednesday and Thursday.

Papers in Technical Section

Many of the suggestions presented at the Maintenance and Conservation forum and papers presented at the various group meetings are presented in the Technical Section of this week's issue of the PAPER TRADE JOURNAL on page 75.

Importance of Paper in Our National Life*

By J. L. Riegel[1]

Few people realize the importance of the relationship of the paper industry to the war program and the essentiality of the industry to the civilian economy. The statement has been made that, if pulp and paper mills should stop operating tomorrow, the war would come to an end in sixty days. Possibly this is an overstatement, but it is certain that a total lack of paper, pulp, and allied products would have a devastating effect on our war program. No less serious would be the impact of such a calamity on our civilian economy and life.

In 1941 Government sources estimated as high as 40 per cent of our total paper and paperboard production would be required for direct and indirect war needs. Unfortunately, precise statistical information is not available either to prove or disprove this figure. However, it will be obvious to all that from the declaration of war to the signing of the final peace treaty paper is essential to the war effort.

Tremendous quantities of writing and printing papers are involved in the registration, induction, classification, and instruction of the vast pool of man power that will eventually make up our armed forces. With the armed forces organized, paper plays an even more important part. The vast regulatory and administrative activities of the armed forces are almost wholly dependent on paper. Battle plans, orders and clerical activities of the Army and Navy require large quantities.

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] President, Riegel Paper Corp., New York, N. Y.

Paper Plays Vital Part in War Effort

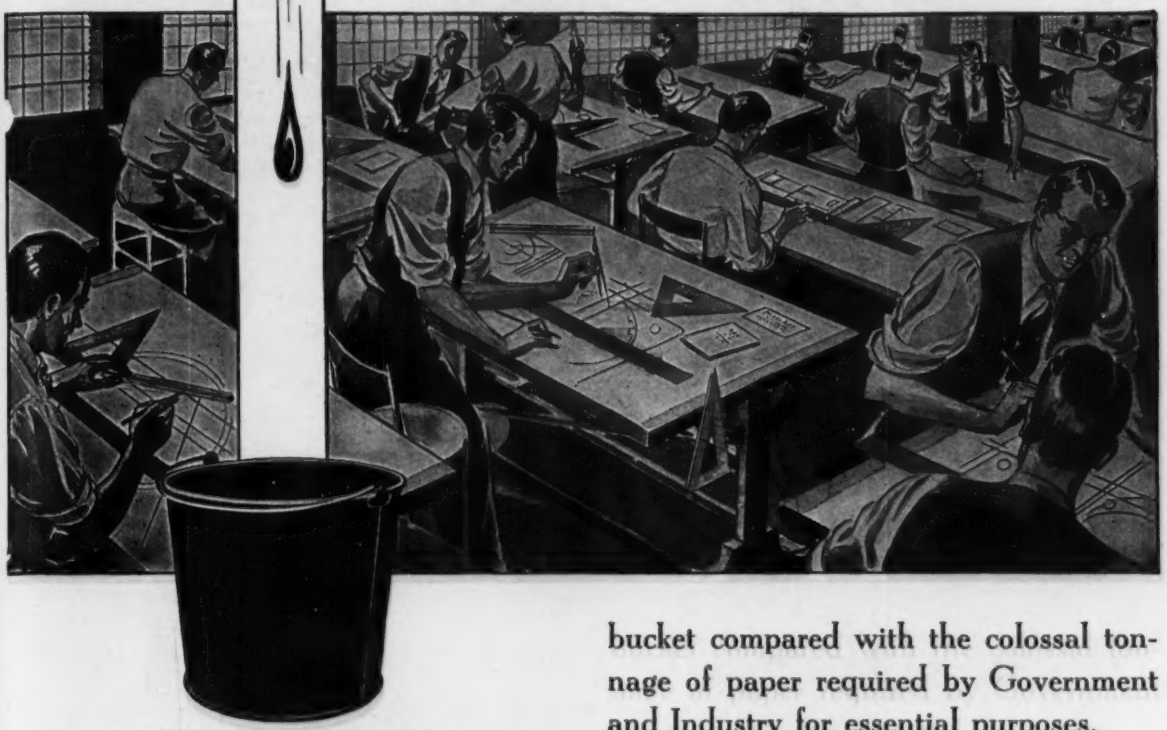
In the manufacture of equipment and supplies used in the war effort paper plays a vital part. Blueprint paper, template paper for ships, paper board for the insulation of airplanes and tanks, condenser paper for radios, cable paper, filter paper for gas masks, photographic paper, meter and chart papers, paper and paperboard for the protection and packaging of subassembly parts moving to the great bomber plants and the many other plants building military and naval equipment—these are only a few of the many types required.

To a large and increasing degree explosives made with a wood cellulose base are being used by the Army and Navy. Presumably the other nations at war are using this base almost exclusively. Wadding paper is used in shells and cartridges, and shipment of ammunition is largely in paper or paperboard containers.

The protection and shipment of food to the armed forces and for lend-lease involves not only enormous quantities of standard packaging papers and board, but many other special types of plain, waxed, and treated sulphite, glassine, greaseproof, vegetable parchment, kraft, and board. Sanitation requires tissue and absorbent papers. Most surgical supplies are protected by paper.

Governmental activities are also largely dependent on a continuous supply of paper for use by the Printing Office, the Office of Price Administration, the War Production Board, the Office of Defense Transportation, and other war agencies, in issuing

A Drop in the Bucket



...for All-Out War Production

According to TIME, March 23, "The drafting room of The Ford Motor Company used five miles of blue print paper a day, seven days a week, for six months." Big as this seems, it is only a drop in the bucket compared with the colossal tonnage of paper required by Government and Industry for essential purposes.

Much of the blue print paper now in use was formed on Hamilton Felts. Hamilton Felts are as necessary to efficient paper machine operation as are rubber tires to automobiles. This explains why the Government has rationed wool as it has rationed rubber. Because they are essential, paper maker felts have priority on the best of wools.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •

the vast quantities of instructions and regulations over which we all struggle.

From the important standpoint of civilian necessity, defense, education, and morale, paper assumes an important part. Our whole complicated business structure could not function without paper for communication, administration, design, construction, advertising, and shipping. Civilian defense requires paper for printing air-raid precautions, first-aid instructions, questionnaires, ration cards and records. Without paper, newspapers, periodicals, and text books would be impossible, and without these our educational system would founder. The maintenance of civilian morale requires paper for posters, newspapers, magazines, mail, radio scripts and moving pictures. Also, without paper it would be impossible to sell and print war bonds and victory stamps.

Estimated 1942 Consumption to 20 Million Tons

All these requirements—Army, Navy, Government and Civilian—add up to the imposing total of an estimated twenty million tons consumption for 1942. This requirement takes an important place among national requirements for other materials, including eighty-five million tons of steel, ten million tons of ships, two million tons of copper, and a million tons of aluminum.

Because modern warfare and national defense are so closely allied to business and industry I think it important to present to you a few facts regarding the position of pulp, paper, paperboard and converted paper products industries in our business and industrial economy. The products of these industries are essential in the daily lives of every person and in the operation of all industries in the Nation. The progress of science, industrial efficiency and education depend on the use of paper.

The United States normally produces 50% of the entire paper production of the world and consumes, together with paper imports, nearly 60% of the world's consumption of paper and paperboard. The constantly increasing use of paper and paperboard products has established the primary industry alone as the sixth largest in the United States. The total investment of the industry is large, the value of its physical plant and forests being approximately two and one-half billion dollars. The value of its annual production totals one and one-half billion dollars. This production is, however, only one link in the long chain of manufacturers which are basically dependent upon pulp, paper, and paperboard. To illustrate this, the primary paper, pulp, and paperboard industry employs over 150,000 persons. However, approximately as many again are employed in the conversion of paper, while the printing and publishing industry employs over 500,000 persons.

Additionally, servicing and raw material requirements of the industry contribute either wholly or partially to the employment of a host of auxiliary workers. The industry requires about four and one-half tons of fiber, coal and chemicals to produce one ton of paper. This gives employment to more than 500,000 farmers, pulpwood cutters, forest workers, waste handlers, coal miners, oil refinery workers, transportation workers, and chemical plant employees.

Paper Industry Important Economically

At least one and one-half million workers and their families, therefore, are dependent upon the paper and pulp industry for a livelihood. Within the primary industry a severe hardship is imposed on the workers if curtailment of production occurs, since the mills are located largely in rural areas and geographical shifting of employment is difficult. The 753 mills of the industry are scattered throughout 37 states, 63% of the mills being located in communities with less than 25,000 population. In many communities the mill is the chief, if not the only source of industrial employment. Remove the mill and the local economy collapses.

Even more important from the national standpoint than the welfare of the workers of the pulp, paper and paperboard industries and the allied industries, is the place of paper itself in the business world. A serious shortage in paper would cause severe disturbances in all industry. A complete stoppage of paper manufacture, although such condition is unimaginable, would cause havoc and a complete collapse of the national economy.

America's war effort is fantastically large. The plant expansion contemplated for it is expected to cost three-quarters as much as the Nation's entire peace-time manufacturing plant was valued in 1940. By the end of this year there will be about four and a quarter million military fighters and seventeen and a half million more producing the materials of war. At the close of 1941, out of a labor force of fifty-five million, nine million were in the armed forces and war industry. By the end of this year there will be nearly twenty-two millions in the armed forces and war industry. Estimates of the cost of the war effort are beyond comprehension, and are constantly being increased. Stoppage of the manufacture of automobiles symbolizes the enormous change.

Country's Big Output Should be Considered

It is the will of our people that we make a supreme effort to win the war quickly, believing that thereby many American lives will be saved and untold suffering among the hundreds of millions of the oppressed nations can more quickly be relieved. We must not underestimate the enormous task ahead of us in winning the war. At the same time we must not underestimate the tremendous productive capacity of this country and our ingenuity. New war plants and facilities are heavily concentrated in the metal, metal working, and transportation vehicle industries. Civilian use of metals must be at a minimum, and we will have to get along without new automobiles, electric refrigerators, typewriters, and hundreds of other metal articles. While it is true that in England only a bare subsistence is left to the civilian population after supplying war needs, I think it would be a great mistake for us to plan for that same thing to happen here. We know only too well in the paper industry that industry production far surpassed Government estimates of what was possible, and that war and civilian demand is now far below Government estimates. Civilian demand is free to take much more paper and paperboard than it is now requiring. There have been constant predictions of a transportation bottleneck, but the railroads of the country are now using no more freight cars than they did a year ago and hauling 25% more tonnage than they did a year ago. Our efforts to load cars heavier and use them more efficiently have had a remarkable result. I would not count on transportation being too much of a bottleneck in the future. The war effort will absorb millions of more workers, but even this

WESTWARD HO! Out across the prairies from the last outposts of civilization the wagon trains of the pioneers stretched a course of progress that did much to extend and consolidate the growth of our nation. It was this spirit of enterprise, banding together the resources, courage and skill of able, sincere and purposeful people, that has made our nation truly great.

THE HISTORIC COURSE OF PROGRESS...

FROM CURRIER & IVES, BY HARRY T. PETERS, REPRINTED BY PERMISSION FROM DOUBLEDAY, DORAN AND COMPANY, INC.

The uniting of the Niagara Alkali Company and the Electro Bleaching Gas Company marks a similarly able, sincere and purposeful endeavor. Now, as one unified source of supply, Niagara Alkali Company will be able to serve important chemical needs of American Industry on an expanded scale to traditional quality standards.

Niagara
ALKALI COMPANY
60 EAST 42nd STREET, NEW YORK, N. Y.

CAUSTIC POTASH · CAUSTIC SODA
PARA · CARBONATE OF POTASH
Liquid Chlorine

EBG NIAGARA ALKALI COMPANY

may not cause the curtailment you might expect. The work week could be increased 10% and only reach 48 hours per week. There are still a good many unemployed and sufficient need would bring many more women into industry.

A hundred and thirty-four million Americans fighting and working to the limit need enormous quantities of goods. This war will definitely force them to go without certain things they are accustomed to, but it will also result in a developing and using of many substitutes. We have a tremendous opportunity in our industry to use our ingenuity and skill in helping to develop these substitutes.

Paper Industry Equal to Big Task

We should manufacture and sell all the pulp, paper and paperboard that we can, provided it does not hurt the war effort of the country. The paper industry can get along with a very small percentage of the highly critical materials, and can turn out enormous quantities of a product which is most essential and useful in our national life. I think that the paper industry can serve the country by meeting not only the war requirements but the civilian requirements on a large scale.

As a matter of fact, leaders of the industry have assured the War Production Board and other interested Government agencies that the industry can meet combined military and civilian needs for paper during 1942. This is a commitment that must be met, and to do so will require the utmost efforts of all of us connected with the industry. During the latter part of 1941 preliminary shortages of critical metals and other materials gave us a preview of what would be required in the way of ingenuity and resourcefulness in meeting the situation that promises to develop in 1942. Today the picture is a little clearer. The industry will have to cut to the bone in its use of copper, tin, rubber, aluminum and other metals and materials. This will require the utmost efforts in conservation and substitution.

During this meeting there have been some very excellent suggestions made as to how the required conservation may be best accomplished. You men are, of course, important in seeing that conservation and salvage programs are carried out. The executive must also carry his share of the burden in seeing that the conservation program is given the proper support. On the other end of the scale is the machine tender, mill wright, machinist or other mechanic upon whom in the final analysis the real job of accomplishing results depends. Information must be placed in the hands of these men in the form of practical, workable suggestions, and I feel sure that if this is done the desired result will be accomplished.

War Will Change Many Methods

Although we can let nothing interfere with our war effort, it is not too early to be thinking of the position of our industry after the war. No one knows when the war will end. Winston Churchill is quoted as saying it is possible in 1942, probable in 1943, and certain in 1944. Whenever it happens there will be an enormous potential demand in this country for the civilian goods that have been taken out of production, such as automobiles. The lessons learned in producing vast quantities of war equipment, together with the sweeping away of the tools and whole system of making the former peace time equipment will give an opportunity for revolutionary changes in manufacturing methods and products. Post-war automobiles and equipment of many sorts are likely to be so different and so superior to the pre-war products that they will create a demand for themselves. By the time the war ends we will have had almost fifteen years in which the additions to the country's housing have been below the real need. That pent-up demand, together with tremendous improvement in prefabricated houses and in equipment going into houses should form the basis of many years of a very active house building program. The rest of the world will have tremendous need for rebuilding, reclothing, and feeding. Great possibilities still will exist for this country to use its genius in production. The readjustment from war to peace will undoubtedly be difficult, the enormous debt will be a problem, but the ability of our people and the resources of our country make a solution of these problems possible. As individuals and as business men we must make certain that this solution is sound. Able leadership will be necessary to guide our country, and care must be taken that the vast government organization existing in war time does not develop into a stagnant bureaucracy.

We, of course, are vitally interested in the post-war condition of the paper industry. Pre-war, it was a healthy, growing industry. From the year 1936 on its production substantially exceeded 1929. During the 30's it had about the same rate of growth as the chemical industry, which all of us recognize as a very progressive and rapidly growing industry. In 1939, before the war started, the industry production was nearly 20% above 1929. Last year it was about a third higher than before the war started in 1939. In the post-war period there will undoubtedly be great competition from new, cheap, and plentiful materials, as well from new methods and new products. In such a period I see no reason why the paper industry should not forge ahead. The great flexibility within the paper and paperboard industry, the low cost of its fiber as compared with other fibers, give great advantages. New uses will be found for paper, and some of the new materials will be found to combine with paper. New products will require packaging, and new types of paper and paperboard packages will be developed. Much of the ingenuity and ability of the industry is represented within the Superintendent's Association, and you will play a large part in carrying the industry forward successfully in the post-war era.

Oswego Gets Large Paper Shipments

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., June 15, 1942—Boats loaded high with paper are continuing to dock here from mills in Canada, one following the other. The movement originally started as a haul of newsprint but within a few days different kinds of paper will also be handled at the local terminal. The paper comes from the Baie-Comeau plant of the Quebec North Shore Paper Company and the Newfoundland plant of the Bowater Paper Company. The latter movement will increase greatly the amount of tonnage to be handled at the local port and it is estimated that about 200,000 tons will be shipped from here this year over the Ontario and Western Railroad.

Those Who Attended the Convention

A

Mr. and Mrs. P. J. Abel, Stickle Steam Specialties Co.
R. P. Abercrombie, Cheney-Bigelow Wire Works
Mr. and Mrs. R. L. Acton, J. E. Rhodes & Sons
Charles S. Adams, Rice, Barton Corp.
S. L. Allen, J. E. Rhoads & Sons
Edward G. Amos, American Paper and Pulp Association
A. W. Ayles, American Cyanamid & Chemical Co.
J. E. Allen, Johnson & Johnson
Sam I. Anderson, Hooker Electro Chemical Co.
P. W. Ayars, Smith Paper Co.
Richard C. Alden, Watervliet Paper Co.
Ralph Atkins, Lee Paper Co.

B

C. L. Bachelder, Hercules Powder Co.
Mr. and Mrs. A. E. Bachman, Missisquoi Corp.
Henry P. Baldwin, Consolidated Water Power & Paper Co.
R. R. Baker, Westinghouse Electric & Manufacturing Co.
Arnold J. Barea, Paterson Parchment Paper Co.
R. T. Barnes, International Nickel Co., Inc.
Mr. and Mrs. Emmett Barney, Philadelphia Felt Co.
T. M. Barry, Fraser Paper, Ltd.
Mr. and Mrs. R. L. Barton, Michigan Paper Co.
Mr. and Mrs. R. W. Bauman, Johns-Manville Corp.
F. K. Becker, Bird Machine Co.
Luther C. H. Beighey, Hammermill Paper Co.
Raymond F. Bennett, Ecusta Paper Co.
B. Benson, Williams-Gray Co.
Harry J. Bettendorf
L. H. Bidwell, Sr., Riegel Paper Corp.
Oscar Bishop, Imperial Paper & Color Corp.
S. G. Blankinship, Port Royal Pulp & Paper Co.
Howard Bogle, Central Fibre Products Co.
J. N. Bolinger
W. G. Booth, Robert Gair Co., Inc.
Albert Boromski, Port Huron Pulp & Paper Co.
G. D. Bowne, Westinghouse Electric & Manufacturing Co.
F. C. Boyce, Wisconsin Paper Products Co.
M. H. Boyce, E. I. du Pont de Nemours Co., Inc.
A. O. Bragg, Diamond Alkali Co.
L. H. Breyfogle, Draper Brothers Co.
Mr. and Mrs. R. E. Briggs, Draper Brothers Co.
Mr. and Mrs. W. H. Brydges, Bedford Pulp & Paper Co.
W. E. Buchanan, Appleton Wire Works
J. G. Bucuss, Acme Steel Strapping Co.
Mr. and Mrs. John Burke, Draper Brothers Co.
Harold Burrows, Manhattan Rubber Manufacturing Div.
E. F. Busdieker, U. S. Rubber Co.
DeHaven Butterworth, H. W. Butterworth & Sons Co.
P. W. Bartholomew, Hercules Powder Co.
Harry P. Bauman, Simonds Saw and Steel Co.
Fred H. Burrows, Burrows Paper Co.
Willard Barnhard II, American Box Board Co.
I. H. Bernard, Metallizing Engineering Co., Inc.
O. T. Birkeness, Wallace & Tierman Co., Inc.
Albert E. Borowski, Port Huron Sulphite and Paper Co.
J. L. Buell, Jr., Reliance Elec. & Eng. Co.
Mr. and Mrs. John Burke, Bird & Son, Inc.
A. G. Bergstrom, Socony Vacuum Oil

C

W. Cairnie, E. B. Eddy Co., Ltd.
Mr. and Mrs. O. W. Callighan, Edgar Brothers Co.
George Carleton, Detroit Sulphite Pulp & Paper Co.
G. T. Carmichael, The Jaite Co.
R. G. Carson, Solvay Sales Corp.
Charles Champion, Millers Falls Paper Co.
C. H. Champion, R. T. Vanderbilt Co.
A. L. Chaplin, Leeds & Northrup Co.
Loker Chittenden, Michigan Alkali Works
A. B. Clark, J. O. Boss Engineering Co.
E. W. Clark, E. C. Atkins & Co.
M. S. Clark, Mathieson Alkali Works
A. C. Clarke, John W. Bolton & Sons
James B. Clarke, National Aniline & Chemical Co.
Walter Clifford, Penick & Ford, Ltd.
Arthur A. Coffin, Titanium Pigment Corp.
F. H. Cole, Walworth Co.
R. M. Coon
C. H. Cook
R. E. Cook, Alexander Bros.
A. M. Cooper, Westinghouse Electric & Manufacturing Co.
C. C. Cordes, Downingtown Mfg. Co.
John Cornell, *Paper Mill News*
John E. Costello, J. M. Huber, Inc.
H. Crabtree, E. B. Eddy Co., Ltd.
George W. Craigie, American Pulp and Paper Mill Superintendents Association
R. B. Creel
W. W. Cronkhite, General Electric Co.
H. C. Crosland, National Adhesives Co.
A. Fred Crossman, Lindsay Wire Weaving Co.
Mr. and Mrs. F. S. Crysler, Container Corp. of America
Mr. and Mrs. W. W. Campbell, Jr., Lockport Felt Co.
Philip S. Code, Jr., Harding Jones Paper Co.
Wm. F. Costello, Jos. E. Loughead Co.
Mr. and Mrs. E. T. A. Coughlin, Bryant Paper Co.
Glenn V. Cathey, B. F. Goodrich Co.
S. V. Cottrell, National Airline Div.
Wayne E. Crotty, Bryant Paper Co.

D

Emelie Danielson
C. H. Davidson, A. E. Staley Mfg. Co.
E. A. Dawson, Turner Halsey Co.
B. W. Dean, E. D. Jones & Sons Co.
Dorothy De Jonge, Thilmany Pulp & Paper Co.
C. D. DeMers, Taylor Instrument Cos.
V. S. Denison, Beloit Iron Works
T. E. Dial, Socony-Vacuum Co.
John D. Dickson, Jr., R. T. Vanderbilt Co.
F. A. Dieckbrader, Hinde & Dauch Paper Co.
J. C. Dieffenderfer, Hercules Powder Co.
Mr. and Mrs. G. A. Disbro, Tyler Wire Co.
Edward Docherty, Holyoke Wire Cloth Co.
George Docherty, Holyoke Wire Cloth Co.
H. P. Doud
Robert Douglas, Ohio Knife Co.
Lewis Dozier, Rhinelander Paper Co.
E. F. Driver, Fuel Saver Corp.
A. C. Duncan, Hercules Powder Co.
Mr. Doe, Rochester, N. Y.
Mrs. P. H. Dumas, Chromium Corp.
Geo. C. Dunn, Dunn Sulphite Paper Co.
C. L. Durkee, D. J. Murray Mfg. Co.
P. E. Daley, Eastwood-Nealley Corp.
P. K. Devine, Magnus Chemical Co.
F. E. Divine, Hammermill Paper Co.
P. H. Dumas, Chromium Corp. of America
P. F. Dennis, Bryant Paper Co.

E

J. K. Easterling
Homer Eaton, Michigan Alkali Co.
H. O. Ehrisman, The Foxboro Co.
Ivar Ekholm, National Aniline & Chemical Co.
C. L. Ellis, Downingtown Mfg. Co.
J. J. Ely, Peninsula Paper Company
Mr. and Mrs. Robert L. Eminger, American Pulp and Paper Mill Superintendents Association
E. E. Eachart, Continental Paper Co.
Mr. and Mrs. Frank B. Elers, Eastwood-Nealley Corp.
Newton Ewalt, Walworth Co.

F

Tom Falknor, Edgar Brothers Co.
C. R. Faulkender, Dow Chemical Co.
W. C. Ferguson, John W. Bolton & Sons
T. A. Fitch, Johns-Manville Corp.
L. E. Fitzgerald, Hercules Powder Co.
E. T. Fleming, Fleming & Sons
T. G. Fletcher, Fletcher Paper Co.
M. J. Foley, Westinghouse Electric & Manufacturing Co.
A. C. Ford, Simonds-Worden-White Co.
K. I. Forest, Northwest Paper Co.
L. P. Fortier, Everett Pulp & Paper Co.
P. M. Foster, Williams-Gray Co.
James A. Foxgrover, Hercules Powder Co.
A. G. Frankenhoff, The Dicalite Co.
James H. Fritz, Nat'l Oil Products Co.
Harry D. Frost, The Sinclair Co.
F. F. Frothingham, Bird Machine Co.
Clarence A. Fee, Simonds Saw & Steel Co.
S. W. Fletcher, J. O. Ross Engineering Corp.
L. M. Fleming, Detroit Sulphite Pulp & Paper Co.
Myron F. Flotow, French Paper Co.
R. J. Farley, Upson Co.
W. J. Farrell, Steel Sales Corp.

G

W. W. Galloway, Bauer Brothers Co.
John Gammon, National Oil Products Co.
A. T. Gardner, Provincial Paper, Ltd.
K. P. Geohegan, Aetna Paper Co.
O. P. Gephart, The Miamisburg Paper Co.
H. B. Gerber, Williams-Gray Co.
W. L. Glass, F. C. Huyck & Sons
T. G. Glenn, General Electric Co.
Walter J. Goettsch, S. M. Langston Co.
E. L. Goodall, Provincial Paper, Ltd.
H. H. Gottsleben, The Geigy Co.
W. E. Greene, W. E. Greene Corp.
W. N. Greer
Alan H. Griffin, Riegel Paper Corp.
L. L. Griffiths, Jr., Williams-Gray Co.
Mr. and Mrs. Robert M. Guie, Philadelphia Felt Co.
Glen E. Graham, Sutherland Paper Co.
E. C. Gildenzopf, Schmidt & Ault Paper Co.
Ralph A. Gilchrest, Simonds Saw and Steel Co.
John S. Gorman, Signode Steel & Strapping Co.
J. W. Grimes, Standard Oil Co.
Edward P. Gillan, Anheuser-Busch, Inc.
Paul Goetcheus, Steel Sales Corp.

H

E. H. Hall, Morey Paper Mills Supply Co.
G. B. Hall, Morey Paper Mills Supply Co.
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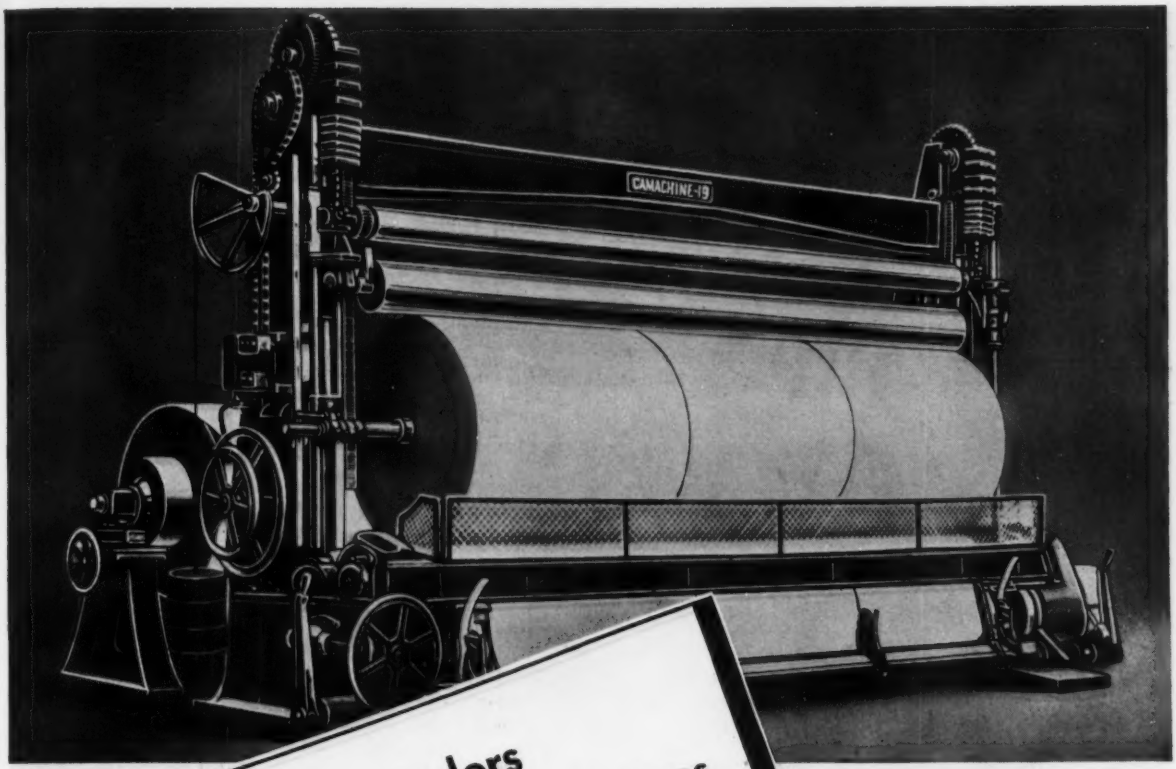

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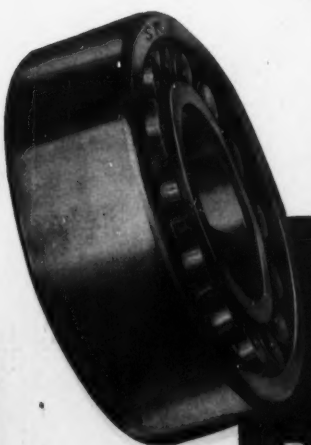

SKF

BALL AND ROLLER BEARINGS

CONSTRUCTION NEWS

Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Production Board. The status of projects reported herewith under the provisions of this order is not known.—EDITOR.

New York, N. Y. — The Polychrome Corporation, 84 University Place, manufacturer of special coated papers for stencils and other service, has leased a floor in building at 521 West 26th street, and will occupy for converting plant.

Delair, N. J.—Fire, June 17, destroyed a large storage building used for waste paper service at plant of Kieckhefer Container Company, Delair, manufacturer of container board, liner board, corrugating board, etc. The structure was located at foot of Derousse avenue, fronting on bank of Delaware River, and contained about 1,000,000 tons of waste paper. An official estimate of loss has not been announced. It is planned to rebuild.

Aberdeen, Wash.—The Aberdeen Chamber of Commerce, F. W. Linklater, manager, has announced an offer of Neil Cooney, Aberdeen, for the establishment of a pulp mill on site of about 530 acres of land in the Grays Harbor district, vicinity of the city. Mr. Cooney, it is reported, will give the site to a reputable company which will construct and operate the mill. The property fronts on the Chehalis River, which has a depth in that locality sufficient to accommodate ocean-going freighters. It is estimated that the proposed mill will be equipped for an initial capacity of about 100 tons of pulp per day.

Miamisburg, Ohio — The Miamisburg Paper Company, manufacturer of envelope papers, bristol board and other paper stocks, has work under way on new addition to mill, to be used primarily for storage and distribution, previously referred to in these columns, and proposes to complete the structure during the summer. W. Ray Yount, Third National Bank Building, Dayton, Ohio, is consulting engineer. A. P. Ziegler, Dayton, has the general erection contract.

Detroit, Mich.—With the reorganization of the Detroit Paper Products Company, 5800 Domine street, Detroit, now being consummated, operations at mill in the future will be concentrated on the fabrication of paper cartons, rolls and sheets. The plant has been completely improved and modernized, and large production schedule will be maintained. The company has liquidated its plastics division, formerly operating a plant at Kalamazoo, Mich. Harry Reinke, formerly operating manager for company, has been elected vice-president and general manager of the reorganized corporation.

UNTAPPED RESOURCES
of Your Paper or Board Machine
Sutherland Refiner with 48" Discs Hydraulic Control
Untapped Resources of your paper or board machine may be released by treating your stock with a Sutherland Single Rotating Disc Refiner. Sutherland Refiner Corporation, Trenton, New Jersey
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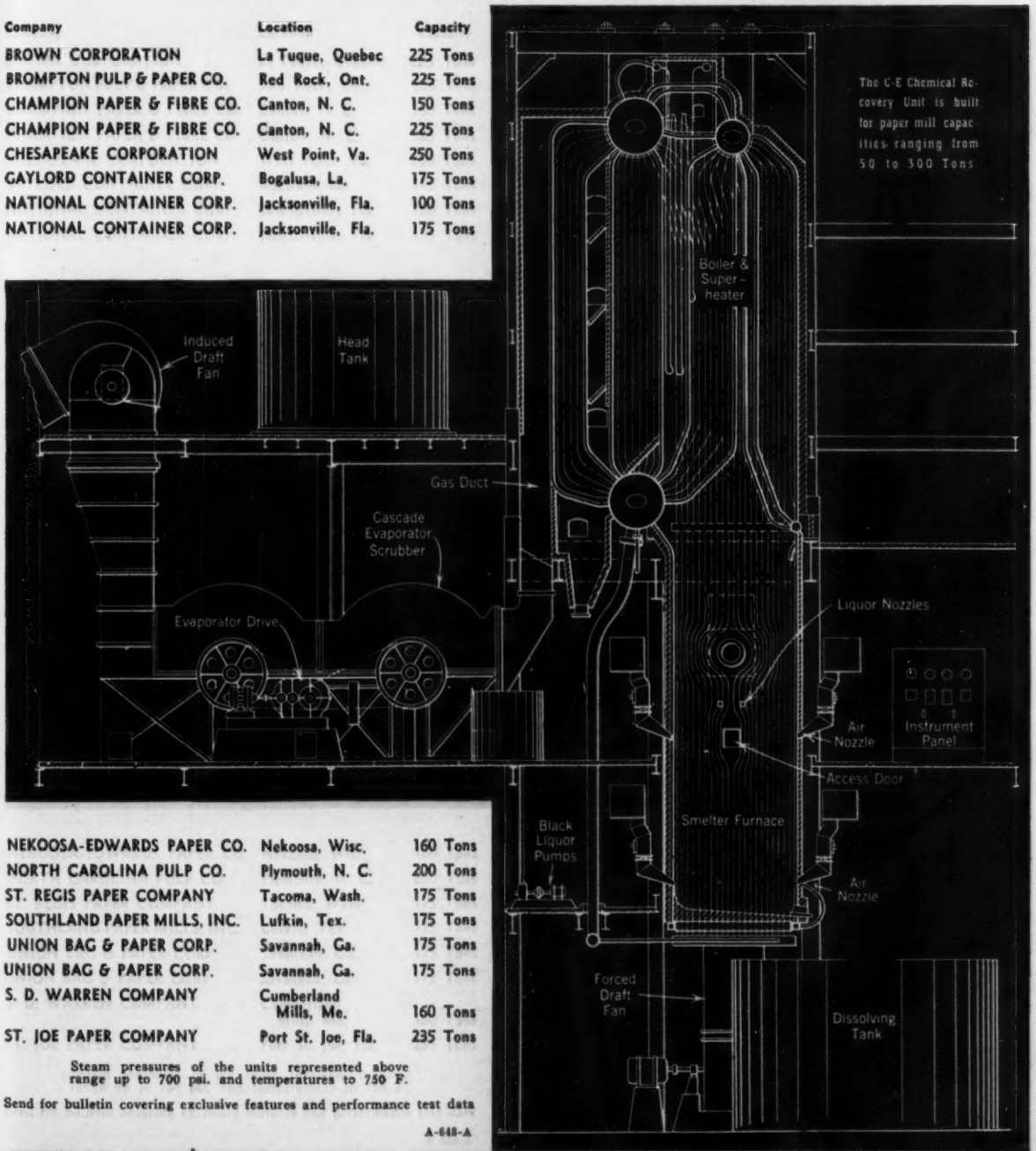
users of C-E CHEMICAL RECOVERY UNIT

The list of customers below is ample evidence of the success achieved by the new design C-E Chemical Recovery Unit since it was introduced only four years ago. Several are repeat orders.

Company	Location	Capacity
BROWN CORPORATION	La Tuque, Quebec	225 Tons
BROMPTON PULP & PAPER CO.	Red Rock, Ont.	225 Tons
CHAMPION PAPER & FIBRE CO.	Canton, N. C.	150 Tons
CHAMPION PAPER & FIBRE CO.	Canton, N. C.	225 Tons
CHESAPEAKE CORPORATION	West Point, Va.	250 Tons
GAYLORD CONTAINER CORP.	Bogalusa, La.	175 Tons
NATIONAL CONTAINER CORP.	Jacksonville, Fla.	100 Tons
NATIONAL CONTAINER CORP.	Jacksonville, Fla.	175 Tons
NEKOOSA-EDWARDS PAPER CO.	Nekoosa, Wisc.	160 Tons
NORTH CAROLINA PULP CO.	Plymouth, N. C.	200 Tons
ST. REGIS PAPER COMPANY	Tacoma, Wash.	175 Tons
SOUTHLAND PAPER MILLS, INC.	Lufkin, Tex.	175 Tons
UNION BAG & PAPER CORP.	Savannah, Ga.	175 Tons
UNION BAG & PAPER CORP.	Savannah, Ga.	175 Tons
S. D. WARREN COMPANY	Cumberland Mills, Me.	160 Tons
ST. JOE PAPER COMPANY	Port St. Joe, Fla.	235 Tons



Steam pressures of the units represented above range up to 700 psi. and temperatures to 750 F.

Send for bulletin covering exclusive features and performance test data

A-648-A

COMBUSTION ENGINEERING COMPANY, INC.

200 MADISON AVENUE, NEW YORK, N. Y.

Priority Changes Announced After July 1

WPB Explains Three Sweeping Changes In the Production Requirements Plan, the Allocation Classification Systems and the Uniform Procedure For the Determination of Preference Ratings.

The Priorities Department, War Production Board, 122 East 42nd street, New York, released on June 24 the following announcement:

Three sweeping changes are being made after July 1 in the priorities system which many of you have been using to secure strategic materials.

1. First and most important, under Priorities Regulation No. 11; nearly every company using more than $5,000 worth of basic metals in a calendar quarter must file an application under the Production Requirements Plan before June 30. PRP supersedes all other priority instruments in the field it covers.

2. Orders placed after July 1st, and previously placed orders calling for delivery after July 31st, must carry the explanatory symbols of the Allocation Classification Systems.

3. The form of applying and extending all preference ratings will be made uniform after July 1st.

Production Requirements Plan

Application under the Production Requirements Plan (PRP) is made on Form PD-25A and covers the materials needed for war or essential civilian use for three months.

In filling out the application the statistical approach is used and a report is made on the status of materials in production at four basic stages:

a. Actual consumption during the most recent three months.

b. Inventory on hand at the end of that period.

c. Future requirements. This is predicated on "a" and "b".

d. The operating cushion of minimum stock at end of the quarter.

In dealing with finished products, the analysis of the previous quarter's sales by products in dollar value should include:

a. A thorough description of the product and its function or use, as, for example, a bedspring—for hospital bed; or a bronze bushing—for railroad car journals.

b. An explanation of any increase in requirements over past shipments.

Shipments and scheduled orders for the next quarter's delivery must be analyzed by preference ratings, by industry, and by end use—thus indicating the relative importance of the product to the war effort, which is the basis for allocation of materials.

Note: If you have set up a perpetual inventory, it will make easier the task of filling out this application. In any event, make a physical check of your inventory—this is essential for approval of your full requirements. You may use any ninety day period in the past on which to project your requirements for the future, but the nearer you are to the actual date of filing, the better. It is important that your application be firmly based on your current inventory status.

If you are one of those required to do so, and have not filed an application for PRP by June 30, you are forbidden, until you do file an application, to use any priority rating to obtain material. However, those persons who file late in June and who do not receive their certificate making them a PRP Unit by July 1st, may—pending receipt of the certificate—continue in a restricted and limited sense to obtain materials through ratings under "P" orders—even those that were scheduled to expire on June 30—and individual certificates.

Small manufacturers and others who are not compelled to come under PRP may continue to use individual ratings as in the past.

A stockpile of materials is being reserved for such producers as well as for hardship and emergency cases.

Those who are specifically excepted from the mandatory provisions of PRP are: certain agencies of the United States and other governments and such industries as transportation, public utilities, communications, construction, mining, refining, distribution, etc.

Allocation Classification Systems

The Allocation Classification Systems are a simple, clear method of indicating the movement of materials in civilian and war production. They show both the end use and the ultimate purchaser of all products covered. They will reduce the number of forms and reports that industry must now submit to the War Production Board and they will furnish vitally needed information to guide the WPB in its allocation of materials.

As indicated above, under Priorities Regulation 10, the Systems' code must be used on all orders placed after July 1 and on all previously placed orders calling for delivery after July 31, except those at the retail level thus, orders by an individual consumer or by a retailer do not need these symbols.

The systems dovetail neatly into PRP, giving a uniform method of indicating the end use of the applicant's product. This is important since many subcontractors and their suppliers, who must use PRP, have no way of determining these end uses and have had no standard method of stating this on their application form.

The systems are a combination of numerical symbols showing end use and of letters indicating the broad category in which the purchaser falls.

There are five purchaser groups:

Purchaser	Symbol
The Army	USA
The Navy (includes Maritime Commission)	USN
Lend Lease	LL
Other Foreign Purchasers	FP
Domestic Purchasers	DP

There are twenty three end use groups, numbered without any relation to their importance. Thus 1.00 covers Aircraft, Production and Maintenance; 7.00 includes War Facilities, Construction and/or Maintenance; 13.00 Agricultural equipment and supplies.

"My boss wasn't kidding when he said he didn't have time to teach me. Yet, with the plant going night and day, I'm being called on more and more to use my own judgment in handling maintenance. That's big responsibility for new men—with piping so important. But I'm catching on—with the help of these Crane Piping Pointer Bulletins."

TODAY, Crane Shop Bulletins are doing a timely twofold job in many plants. (1) Their many practical hints on better piping practice aid in training and supervising maintenance crews. (2) They help step-up the operating efficiency of pipe lines, and assure maximum service from present equipment.

Piping Pointer Bulletins are offered *free* to your plant—for your employee training school, for posting in shops, for distribution to your men. Just ask your Crane Representative; he will be glad to supply them.

CRANE

CRANE CO., GENERAL OFFICES:
836 SOUTH MICHIGAN AVENUE, CHICAGO
VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL MARKETS

Within each group, the numbers after the decimal point describe the more definite type of equipment: thus orders for materials going into bombs for the Army air corps will use the symbols USA 5.30; parts for landing craft carrying tanks would be described by USN 2.33. The symbols will be used through the whole cycle of production from the smallest subcontractor to the prime contractor rolling out the finished product.

Note: On all purchases for the Army, Navy or Maritime Commission, the responsibility for putting the proper symbols on the orders rests with the procurement officials. On civilian products, the use of the symbols must be started by the end user of the finished product, just below the retail level. Quickly these symbols will filter down through every industrial level.

Those applying for PRP will not be expected to use these code symbols by July 1 but on their next application, before October 1, they should use them.

Application and Extension of Ratings

The third great change in the priorities system is in the form of applying and extending preference ratings. After July 1st, any rating may be extended by a single form of certification on orders for material which will be delivered to the person to whom the rating was originally assigned or physically incorporated in products so delivered.

This certification states merely that the purchaser certifies to the seller and the WPB that he is entitled to use the preference ratings indicated on his purchase order, in accordance with the terms of Priorities Regulation No. 3.

Special provision for small manufacturers not under PRP enables them to extend ratings, within definite limitations, for deliveries of such operating supplies as lubricants, small perishable tools, etc.

Note: It will be no longer necessary to furnish copies of priority certificates with any order: whether the purchaser is operating under PRP or other ratings, he may extend them in the same simple fashion.

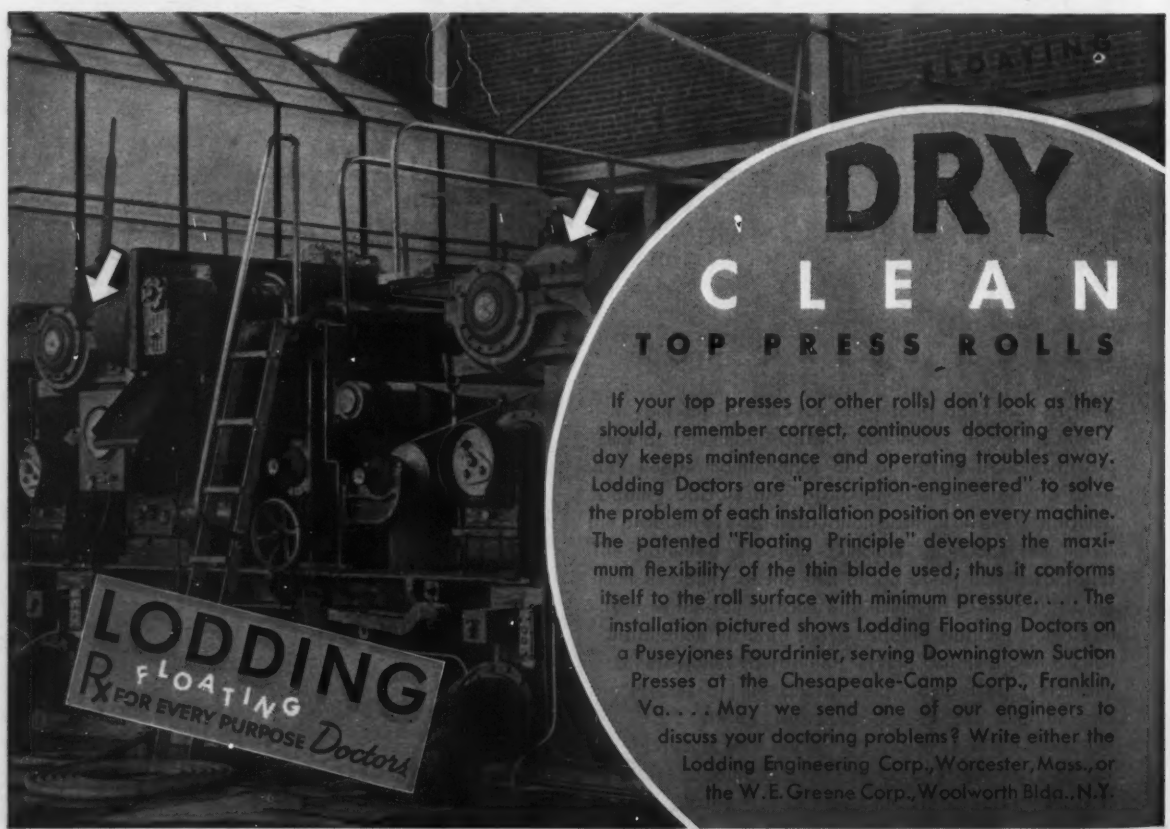
Fundamental Changes

The changes in the priorities system are fundamental—they are essential steps in gearing our economy to war production.

The reason for them is, quite simply, that our supply of materials is not adequate to meet both the increasing demands of war production and civilian needs. We must have adequate data on which to base allotments of available materials.

The WPB will be advised by the General Staffs of the United Nations, as well as our own armed services and the Maritime Commission, as to the equipment needed most quickly. With data gathered from PRP and the Allocation Classification Systems, allocations can be made rapidly.

Business men are urged to obtain the orders discussed here: Priorities Regulation No. 11, No. 10, and No. 3 as amended. Specific questions should be directed to the nearest district office of the War Production Board.


LODDING
FLOATING
Rx FOR EVERY PURPOSE Doctors
DRY
CLEAN
TOP PRESS ROLLS
If your top presses (or other rolls) don't look as they should, remember correct, continuous doctoring every day keeps maintenance and operating troubles away. Lodding Doctors are "prescription-engineered" to solve the problem of each installation position on every machine. The patented "Floating Principle" develops the maximum flexibility of the thin blade used; thus it conforms itself to the roll surface with minimum pressure. . . . The installation pictured shows Lodding Floating Doctors on a Puseyjones Fourdrinier, serving Downingtown Suction Presses at the Chesapeake-Camp Corp., Franklin, Va. . . . May we send one of our engineers to discuss your doctoring problems? Write either the Lodding Engineering Corp., Worcester, Mass., or the W. E. Greene Corp., Woolworth Bldg., N.Y.

Elimination of slime is a microbiological problem, for the slime-forming organisms actually live on cellulose, and grow and multiply in a favorable environment in the system. It can't be done by half-way measures. It calls for the aid of experienced specialists on problems of water-borne contamination, men who know the bacterial side of the problem, and who know what's practical in modern plant operations.

On the basis of experience at 20,000 water-supply installations, including more than 300 paper mills, Wallace & Tiernan Representatives can help you establish proper slime prevention treatment with a minimum of trial-and-error. And the cost of using chlorine or chloramine to keep your plant permanently slime-free averages no more than 1½ to 6 cents per ton of product. Call our local representative, or write for this assistance.

FREE BULLETIN

Describes Latest Practice for Microbiological Control

This illustrated booklet tells how to improve "plant housekeeping", eliminate slime with chlorine and chloramine. It's based on current practices at several leading mills. Also discusses biological control of papers for wrapping foodstuffs. Write for a copy.

P-36

"The Only Safe Water is a Sterilized Water"

WALLACE & TIERNAN CO., Inc.

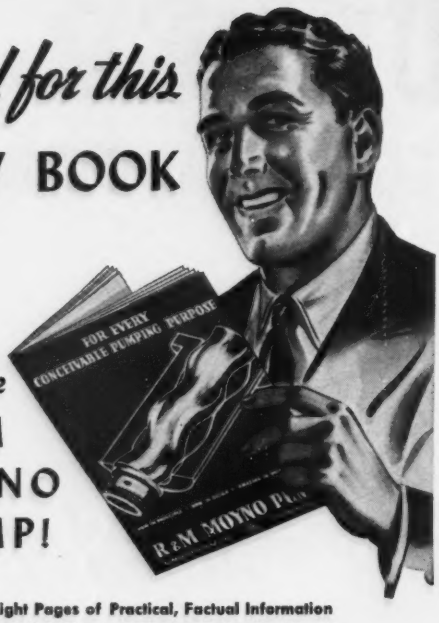
MANUFACTURERS OF CHLORINE AND AMMONIA CONTROL APPARATUS
NEWARK, NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

Send for this

NEW BOOK

on the

R&M MOYNO PUMP!



Eight Pages of Practical, Factual Information that Will Help Solve Your Pumping Problems!

IF YOU'RE looking for a new, *different* type of pump that can do the job better and faster—with less maintenance and fewer pumping-trouble delays—send for this free book *now!*

It's a *brand new* 8-page book, packed with practical information on the R & M Moyno Pump. Facts that show how its ability to handle stock, size and coating can revolutionize pumping operations in *your* plant. It tells how the Moyno compares in *principle* with other types of pumps. How it is helping paper and other vital industries to produce more—and improve product quality at the same time. How the Moyno has proved—feature by feature—to be the greatest pumping improvement in decades!

The entire book was written by R & M Moyno engineers who have spent many years solving *tough* paper pumping problems. If you don't need it for immediate reference, you'll want it later. It's yours free—mail the coupon today!

ONLY 1 MOVING PART!

Here's the patented principle of the R & M Moyno Pump's amazing performance. A single-threaded helical rotor revolves in a double-threaded helical stator, providing pumping action like that of a piston moving through a cylinder of infinite length.

Moyno pumps are manufactured under R. Moineau's patents

ROBBINS & MYERS, Inc., Moyno Pump Division, Springfield, Ohio

Please send me the new 8-page book on the R & M Moyno Pump.

Name .....

Firm Name .....

Address .....

Pump will handle .....

Riegel Co. Makes Paper Tires

Paper tires to alleviate the rubber shortage in this country may ease the problem of rationing if the war continues and the scarcity of the raw material becomes more acute. It should be stressed, however, that at the present time, such tires are purely experimental.

Such tires have already been produced at the Milford, N. J., plant of the Riegel Paper Corporation by George L. Bidwell, vice president and general superintendent. They have proved fairly successful in driving tests on the car of Norman Applegate, plant engineer, and are undergoing further testing and experimentation at the present time. The tires, which were designed by Mr. Bidwell, are manufactured

PAPER AUTOMOBILE TIRE

from paper which is made from old khaki uniforms and compressed under hydraulic pressure.

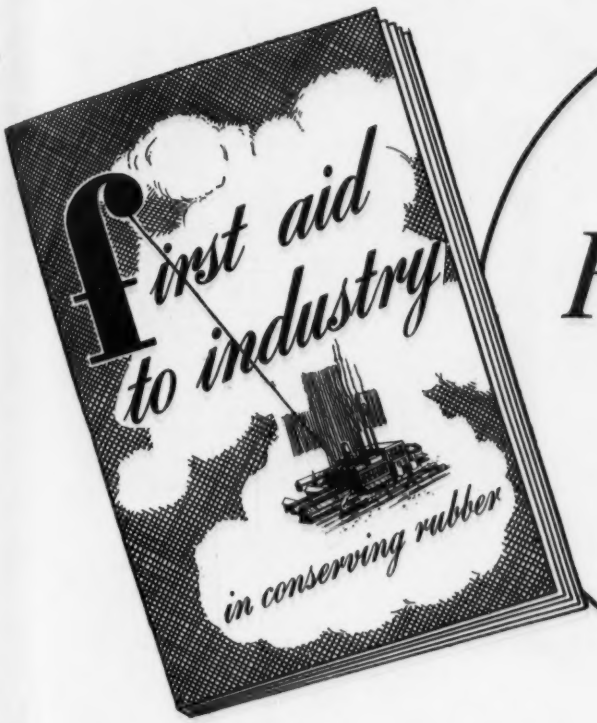
"We have designed and experimented with such a paper tire," Mr. Bidwell announced, "and are continuing its development." Naturally it has not the cushioning of a rubber tire but if the rubber shortage continues, the need for walking might be alleviated. The tires resemble rubber in appearance but present a flat surface to the pavement like a wagon wheel, instead of the full rounded surface of a pneumatic tire.

Naturally they are not as flexible as rubber but in an emergency such as this, they could be used for short trips and in all probability, will prove practical for ordinary, everyday use of an auto.

The story of the manufacture of the tires was carried recently in one of the New York daily newspapers and reprinted elsewhere. For this reason, the Riegel Company wishes particularly to stress the fact that the process is still in the experimental stage and no plans for producing them on a commercial basis have been completed.

The tires are made from circles of paper, the inside diameter of which is 18" and the outside diameter 28 inches. They are now 5 inches thick but it is hoped to get them down to 2½ inches later. "A rubber center would increase the cushioning effect somewhat," Mr. Bidwell added, "but an attempt will be made to perfect them without using any rubber at all." About ¾ inch of the paper protrudes over the steel rim and holds it together and as this is worn down, the steel rim is cut away to permit further wear. The tires have about the same traction as a rubber tire but are noisier.

SAVE RUBBER
FOR UNCLE SAM'S FIGHTING FORCES



←This Free Booklet tells you How

TO HELP YOU obtain service beyond normal from your rolls, belting, hose and other industrial rubber products, we have placed years of "U.S." experience at your disposal—through our sales engineers and in a 44-page illustrated booklet entitled "First Aid To Industry In Conserving Rubber."

Facts contained in this booklet will enable you to take advantage of the finest available information on industrial rubber conservation. The practice of these precautions *today* may avoid costly breakdowns *tomorrow*—with resultant loss of production, possible damage to equipment and injuries to personnel.

The explanations in this booklet are clear, concise, and they are written in language which operating men understand. Special sections are devoted to the installation and maintenance of mechanical rubber products commonly used in the paper industry, such as . . .

- **Rubber-Covered Rolls**
- **Rubber-Lined Equipment**
- **Hose—Machine, Steam, Fire**
- **Mechanical Packings**
- **Transmission and Conveyor Belting**
- **Electrical Wire, Cords, Cables, and Tapes**
- **Mats and Matting**

We will gladly send you a copy of this booklet upon request.

"Service Beyond Price and Specifications"

UNITED STATES RUBBER COMPANY

1230 Sixth Avenue • Rockefeller Center • New York

June 25, 1942

PAPER MILL MACHINERY
Straight, Harper and Edwards Fourdriniers—For book, bond or fine tissues.
Cylinder and Wet Machines. Jordans — Pumps — Calenders "Rainstorm Shower Pipes".
Below: THREE PLUNGER STUFF PUMP
For the Finishing Room
UNDERCUT TRIMMER
Electric Eye Web Edge Control — Slitters—Reels—Rotary Cutters.
Above: Rotary SPOT CUTTER
FOR BAG PLANTS
Flat, square and satchell bottom bag machines—single and multiwall pasted valve bag machines — tuber and bottomer type bag conveyors.
Below: HEAVY DUTY MULTIWALL TUBER WITH COMPLETE AUTO COMPENSATOR FOR PREPRINTED ROLLS.
1828
The SMITH & WINCHESTER Manufacturing Company
SOUTH WINDHAM CONNECTICUT
6

U. S. Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 24, 1942—The Government Printing Office has received the following bids for 8,150 pounds of 25% rag, 24 x 38 green bond paper: Aetna Paper Company, 18.74 cents; Bradner, Smith & Co., 11.64 cents; Walker Goulard Plehn Company, 13.45 cents; Central Ohio Paper Company, 15.5 cents; Bermingham & Prosser Company, 13.25 cents; Whitaker Paper Company, 13.42 cents; Wilcox, Walter Furlong Paper Company, 12.89 cents; Coy, Hunt & Co., 12.46 cents; Collins Manufacturing Company, 10.98 cents; Chicago Paper Company, 12.25 cents; Butler Company, 19.27 cents; Bulkley Dunton & Co., 12.25 cents; Resolute Paper Products Corporation, 12.38 cents; Barton, Duer & Koch Paper Company, 11.77 cents; and Whiting Paper Company, 13.20 cents.

For 230,000 pounds of 25% rag, 32 x 42 white bond paper: Aetna Paper Company, 11.94 cents; Bradner Smith & Co., 10.89 cents; Virginia Paper Company, 11.23 cents; Walker Goulard Plehn Company, 10.4 cents; Central Ohio Paper Company, 10.4 cents; Bermingham & Prosser Company, 10.475 cents; Stanford Paper Company, 11.23 cents; Whitaker Paper Company, 11.92 cents; Wilcox Walter Furlong Paper Company, 12.69 cents; Coy, Hunt & Co., 11.69 cents; Collins Manufacturing Company, 10.98 cents; Chicago Paper Company, 11.17 cents; Butler Company, 10.465 cents; Paper Corp. of U. S., 10.9 cents; Bulkley, Dunton & Co., 11.5 cents; Resolute Paper Products Corporation, 11.94 cents (50,000 pounds only) and 12.18 cents; Barton, Duer & Koch Paper Company, 10.75 cents (100,000 pounds only) and 11.15 cents (130,000 pounds only); and Whiting Paper Company, 13.20 cents.

For 400,000 pounds of white sulphite writing paper in 38 inch rolls: Cauthorne Paper Company, 6.4 cents; Whitaker Paper Company, 4.91 cents; R. P. Andrews Paper Company, 4.99 and 4.89 cents; Perkins-Goodwin Company, 4.979 cents; Barton, Duer & Koch Paper Company, 6.54 cents; and Marquette Paper Company, 5.16 cents.

For 9,600 pounds of 100% rag, cream white antique book paper, 38 x 48: R. P. Andrews Paper Company, 17.97 cents; Paper Corp. of U. S., 19.89 cents; Marquette Paper Company, 19.47 cents; Bradner Smith & Company, 17.5 cents; Collins Mfg. Company, 26 cents; and Wilcox-Walter-Furlong Paper Company, 19.97 cents.

For 200,000 pounds of white sulphite writing paper in 38 inch rolls: R. P. Andrews Paper Company, 5.09 cents; Barton, Duer & Koch Paper Company, 6.24 cents; Paper Corp. of U. S., 5.9 cents; Marquette Paper Company, 5.21 cents; Stanford Paper Company, 5.88 cents; Eastern Corporation, 5.85 cents; Wilcox-Walter-Furlong Paper Company, 6.5 cents; Central Ohio Paper Company, 5.94 cents; Mead Sales Company, 6.25 cents; Butler Company, 5.46 cents; Parker Young Company, 6.272 cents; Walker Goulard Plehn Company, 5.35 cents; Perkins-Goodwin Company, 5.229 cents; Coy, Hunt & Co., 5.82 cents; and Bermingham & Prosser Company, 5.44 cents.

Meet for Russian Relief

Members of the Paper, Paper Box and Allied Trades Division of Russian War Relief met June 17 at a luncheon, to launch a campaign to raise funds for the organization, in its drive for $6,000,000 in 1942. With great enthusiasm, leaders of the industry unanimously agreed upon a general solicitation of funds within the trade.

William M. Hurlbut, vice-president of the International Paper Company, was chairman at the luncheon, and introduced the speaker, George Hamilton Coombs, radio news commentator. Mr. Coombs stressed the need for supporting Russia, as an integral part of the war effort.

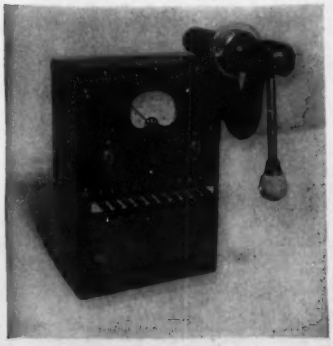
Among those who attended the luncheon were Stuart Andrews of L. P. Andrews Company; Walter H. Bell; Malcolm Black of Union Bag and Paper Company; Dan Bellin of Gem Corrugated Container Corporation; Aaron Berkowitz of Hercules Corrugated Box Company; Samuel Dauman of D. J. Gottesman & Co.; Harry M. Elish; Max Feldman of the Atlantic Container Corporation; Emanuel Katz of San-Nap-Pak Manufacturing Company; Edward J. Keller, president of E. J. Keller Company, Inc.; Joseph Kramer of Kraft Corrugated Containers, Inc., and Gustave C. Indruk of Tappen & Indruk Company.

Also present were Michael Pomerance of Forest Paper Company; Robert M. Robert of Robert Paper Company; Louis Rosenfeld of the National Container Corporation; Hyman Schrier of Schrier Brothers, and Morris Walper of Express Container Corporation.

Hart Moisture Meters

The Type K Hart electrical moisture meters have their applications in many manufacturing operations where the accurate determination of moisture content is a problem.

In the various divisions of the paper industry, such as in converting plants producing wax and other coated papers, Hart meters can be applied, not only to read the moisture content, but to indicate the uniformity of the particular coating through the change in electrical resistance such as coatings produce. Thus, a Hart instrument installed at a waxing bath gives instantaneous readings showing the dryness of the stock immediately ahead of immersion and in addition, the uniformity of the coating as the stock emerges from the bath.



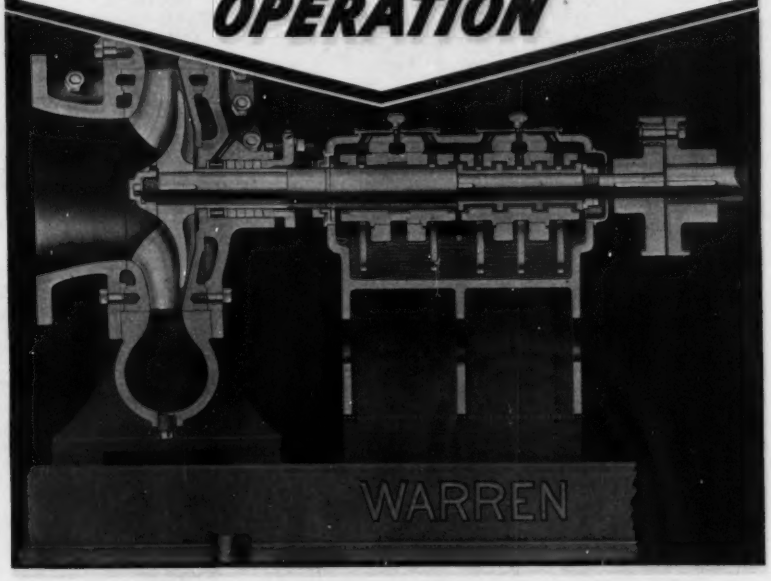
TYPE K. HART METERS

In another typical application, both the average moisture content and the moisture percentage of the point of greatest saturation are read. Application of the Hart meters to the study of moisture penetration is accomplished by the use of a small accessory and an electric clock.

These moisture meters are offered fully calibrated for each customer's paper or other products, and provide direct reading in moisture percentage without reference to charts or tabulations.

Hart moisture meters are manufactured by Raymond S. Hart, 7 Lincoln street, Jersey City, N. J., with New York offices at 1950 Grand Central Terminal. The manufacturer states that some users state they regularly make from 300 to 400 determinations daily on each of several Hart meters.

This Sectional View explains why WARREN PUMPS GIVE NON-CLOGGING OPERATION



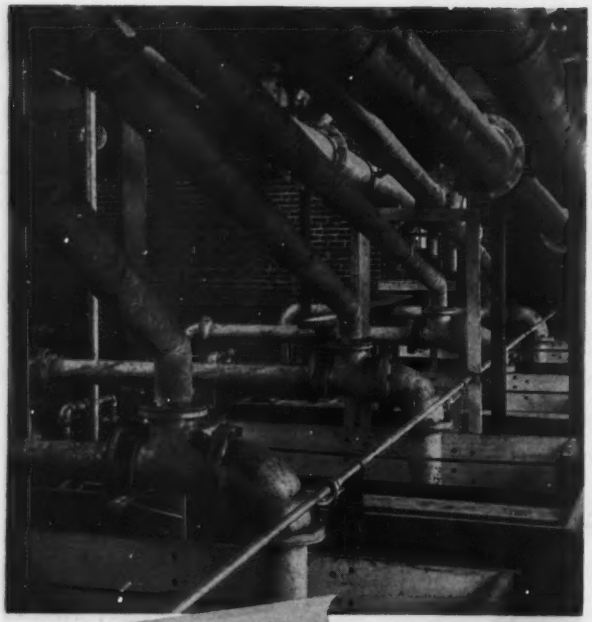
Special Warren-designed vanes keep the back of the impeller free from stock and prevent packing and binding of the pump.

Inlet openings are extra large to insure high density stock reaching the impeller. Proper regulation of suction inlet velocity is obtained by selecting a suction nozzle from the 3 to 5 sizes designed for each size of pump.

Warren Stock Pumps have been used in pulp and paper mills from coast to coast to handle all classes of stock from white water to 7% unbleached sulphite. Warren engineers are familiar with your pumping problems. Call them in on your next job.

WARREN STEAM PUMP COMPANY, INC.

WARREN, MASSACHUSETTS



HERE'S A WARTIME TIP
ON PAPER MILL PIPING

When the war effort demands new paper mill piping here's how you can conserve time and labor. Just specify ARMCO Spiral Welded Pipe. With proper priorities it can be supplied in any diameter from 6 to 36 inches for plant piping or water supply lines.

ARMCO prefabricates pipe to fit your layout. Fewer joints are the rule because fittings come welded to straight pipe runs. The pipe can be prime-coated on the outside only, or hot dip galvanized after fabrication. For water supply lines you can get ARMCO Pipe with a spun enamel lining that assures sustained carrying capacity.

Use ARMCO Spiral Welded Pipe for war maintenance work or new lines. By specifying the one right size of "Spiral Welded" for the job you help conserve vital metal. Economical lengths up to fifty feet reduce costs and speed the work. Write to us for quotations and shipping promises. The American Rolling Mill Company, Pipe Sales Division, 2101 Curtis St., Middletown, Ohio.

ARMCO

SPIRAL WELDED PIPE

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending June 20, 1942

STOCKS

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	26⅜	26	26¼
Celotex Corp.	7⅛	7	7
Celotex Corp., pf.	70	68	70
Certain-Teed Products Corp.	2⅛	2	2
Certain-Teed Products Corp., pf.	25	24½	24½
Champion Paper & Fibre Co.	14½	14½	14½
Champion Paper & Fibre Co., pf.	98	98	98
Congoleum Nairn Co.	15¾	15⅛	15⅛
Container Corp. of America	13	12½	12½
Continental-Diamond Fibre Co.	6⅞	6⅞	6⅞
Crown-Zellerbach Co.	10½	10¼	10⅜
Crown-Zellerbach Co., pf.	78½	78	78½
Dixie-Vortex Co.	8⅛	8⅛	8⅛
Dixie-Vortex Co.—A.	35	34¾	34¾
Flintkote Co.	11¼	11	11
Robert Gair	1⅜	1⅜	1⅜
Robert Gair, pf.	9¾	9¾	9¾
International Paper Co.	10⅛	9⅞	9⅞
International Paper Co., pf.	51½	48¾	48¾
Johns-Manville Corp.	56¼	53½	53½
Johns-Manville Corp., pf.	126½	125½	125½
Kimberly-Clark Corp.	26	25¾	26
MacAndrews & Forbes	....	....	....
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	26¼	25½	25¾
Mead Corp.	6¾	6½	6⅝
Mead Corp., pf.	68¼	68	68
Paraffine Companies, Inc.	28⅝	28	28⅛
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	8½	8¼	8⅜
Rayonier, Inc., pf.	24¾	24½	24½
Ruberoid Co.	18	17½	18
Scott Paper Co.	32	31½	31¾
Scott Paper Co., pf.	108	108	108
Sutherland Paper Co.	20	20	20
Union Bag & Paper Corp.	8⅛	8	8
United Paperboard Co.	3¼	3	3
U. S. Gypsum Co.	50	48	48
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	13	12¾	13

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 4½ '47	97½	96½	97½
Certain-Teed Products Corp. 5½s '48	87¾	87¼	87⅜
Champion Paper & Fibre Co. 4¾s '50	103¾	103¾	103¾
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	105	104¾	104¾
International Paper Co. 5s '47	104	103¾	104
Mead Corp. 4½s '55	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending June 20, 1942

STOCKS

	High	Low	Last
American Box Board Co.	....	....	....
Brown Co., pf.	....	....	....
Great Northern Paper Co.	29	29	29
Hummel-Ross Fibre Corp.	3½	3¼	3¼
National Container Corp.	8¼	8⅛	8⅛
St. Regis Paper Co.	1½	1¾	1½
St. Regis Paper Co., pf.	109	109	109
Taggart Corp.	2½	2½	2½

BONDS

American Writing Paper Co. 6s '61	82½	82	82½

Masonite Earns 88 Cents

The Masonite Corporation reports for the third quarter of 12 weeks, March 15, 1942, to June 6, 1942, net profits of $510,215 after depreciation, income taxes, and other deductions, subject to final audit, equal to 88 cents per share on the outstanding common stock of 539,210 shares, after providing for preferred dividends.

The company reported a net profit of $534,591, or 95 cents, for the same period of time last year. For the 40 weeks from September 1, 1941, to June 6, 1942, net profits totalled $1,297,182, or $2.18 per common share. For the comparable period last year net profits were $1,180,085, or $2.05 per share on 539,210 common shares outstanding at that time.

Sales for the 12-week period totalled $3,856,928, as compared with $2,812,650 for the same period last year. Sales for the 40 weeks amounted to $12,611,850, as compared with $8,665,535.

Alexander Thomson, Jr., Gets Leave of Absence

Logan G. Thomson, president, the Champion Paper and Fibre Company, Hamilton, Ohio, announced last week that the company had agreed to the request of a committee that Alexander Thomson, Jr., vice president and advertising manager of Champion, be granted leave of absence for the duration to act as executive vice chairman and commander Hamilton civilian defense. Mayor Leo Walsh is chairman.

Mr. Thomson will be an employee of the city of Hamilton as a dollar a year man and will serve under the orders of the City Council and R. P. Price, city manager and coordinator of the local defense council. He will be responsible for the organization and function of all activities relating to Civilian Defense and volunteer activities related to the Nation's war effort. Although Mr. Thomson was recommended for a commission as Major, Corps of Engineers, United States Army, as an administrative and personnel officer he was unable to pass his physical examination. Because of his desire to become active in war work he has agreed to taking this position.

Frank Gerhart, assistant advertising manager of Champion, will take over Mr. Thomson's duties.

Paper Men Play Golf

PHILADELPHIA, Pa., June 22, 1942—The annual June outing of the Philadelphia Paper and Cordage Association was held on Tuesday last, at the Manufacturers Country Club. The golfers got off to a good start in competition for the various trophies. George Hoffner of Simon Walter, Inc., turned in low gross score of 77 and was awarded the Schuylkill Paper Company's trophy; this being the third time that Mr. Hoffner has won this trophy over a period of twelve years that it has been in play. The second low gross honors went to J. Harry Snape of J. E. Fricke Company, and D. R. Rommell of Terminal Paper Company, both of whom turned in a 90. The Howard Paper Company's cup, awarded annually to the low net winner, went to Everett Hoffman of J. E. Fricke Company, with a net of 67. The second low net went to H. Schwartz on a net of 78. Low gross prize for visitors was won by Jack Buchanan with a score of 76, and low net prize for visitors was awarded to J. H. Eckels who turned in a net score of 70.

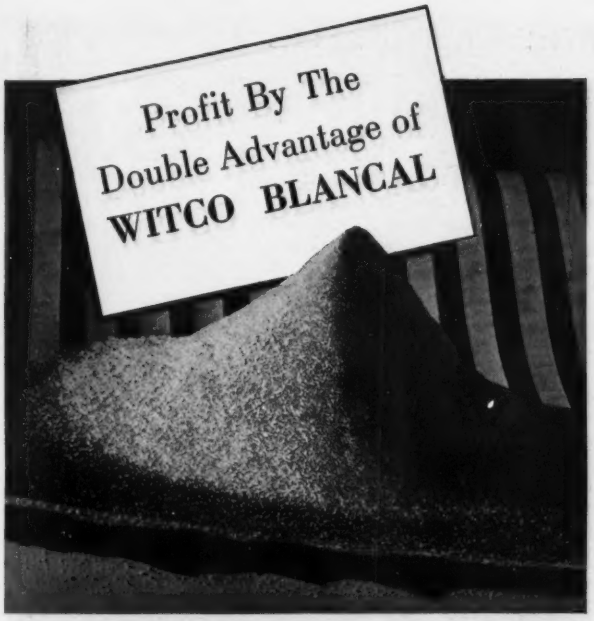
Paul Baron

Paul Baron, president of the Royal Paper Corporation, 210 Eleventh avenue, paper jobbers and converters, died June 22 in his home, 55 Central Park West, New York, after a short illness. Mr. Baron had been prominent in the paper industry for sixty years. His age was 81. Mr. Baron was born in Russia.

He leaves four daughters, Mrs. Libby Coleman and the Misses Adeline, Belle and Tillie Baron, and five sons, Louis J., Abner, Samuel T., Harry and Morton H. Baron.

John Maloney Jr. with WPB

John Maloney, Jr., assistant sales manager of Hoberg Paper Mills, Green Bay, Wis., is in Washington, D. C., serving in an advisory capacity for the toilet, towel and napkin industry to David Winton, Chief of the Pulp and Paper Section of the War Production Board.



WITCO BLANCAL is a new product developed in the Wishnick-Tumpeer Laboratories — a precipitated barium-calcium compound, available in both low and high oil grades. It offers a double advantage over Blanc Fixe. First, because it is an extremely finely divided extender, having excellent color in dry state as well as under oil, it will give you finer and more accurately controlled results. Second, because it has greater bulking value, it is more economical, since a smaller amount is needed for a specified purpose. Our staff will gladly assist you in using WITCO BLANCAL in your processes to improve the quality of your products and at the same time make a substantial saving in cost.

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Westinghouse Shares Its "Know How"

More than a score of new engineering developments and new ideas that could be put to work to help speed production in almost any war industry were disclosed at a luncheon at the Astor Hotel, on June 16, New York, to newspaper writers and leading technical magazine editors by the Westinghouse Electric and Manufacturing Company.

"We believe this demonstration illustrates the willingness of many big companies to share their specialized 'know how' with all American industry during this national emergency," said Dr. A. A. Bates, who directs chemical and metallurgical work at the Westinghouse Research Laboratories, where many of the technical advances were discovered.

"The real problem," he continued, "is to provide some means for the common interchange among industries of such ingenious discoveries and new techniques, so they can be put to use in the thousands of small factories which are working day and night on war production. It is our hope that many of these small plants particularly will find these technical advances helpful."

Devices demonstrated at the meeting ranged from a simple screw driver-like cotter pin spreader that any factory worker can use, to one requiring elaborate laboratory equipment and skilled technicians for determining by photoelasticity the stresses on huge bolts in turbines.

"The nut and bolt, one of the oldest and most common of all fastening devices, defies both mathematical stress analysis and strain measurement. But with photoelastic analysis, Dr. M. Hetenyi of the Westinghouse Research Laboratories discovered that a nut with either a tapered thread or a tapered lip will increase the effective strength of the fastening as much as 40%," reported Dr. Bates.

Continuing, Dr. Bates said:

"Dr. Hetenyi made the discovery by using transparent plastic models of bolts only a fraction as big as the five-foot high, six-inch thick bolts used in turbines. Stresses that occur in actual service were simulated in the models and these stress lines 'frozen' in the models by annealing. When polarized light was passed through the models, it revealed that maximum stress usually occurs at the thread nearest the bottom of the nut."

With this information, Westinghouse engineers have designed turbine bolts so that stresses are more evenly distributed. Since the nut and bolt is a basic fastener, this technique can be applied in many industries, Dr. Bates pointed out.

Others among 25 examples of Westinghouse "know how" demonstrated or explained by Dr. Bates included the use of electric heaters to tighten big turbine bolts, a technique that avoids torsional strains; the use of magnetism to detect under-the-surface flaws in steel; an electronic control to increase production and safeguard the quality of steels treated in atmosphere furnaces, and development of machine-made dies to replace many hand-made dies.

Paper Stock Prices

WASHINGTON, D. C., June 18, 1942—The method for determining maximum prices of various grades of wastepaper, including specialty grades, which are not specifically listed in Revised Price Schedule No. 30 (Wastepaper) was announced today by Price Administrator Leon Henderson.

The action, effected through the

for TILE TANKS

For storage and processing of non-corrosive products you will find tile tanks built by Stebbins offer the following advantages:

(1) The durability of reinforced concrete
(2) The cleanliness of glazed tile construction
(3) The economy of construction
(4) The vital advantage of quick delivery

They are installed by an organization which has specialized for more than half a century in the installation of acid and corrosion resistant linings.

SEMCO
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370 EASTERN BLVD. WATERTOWN, N. Y.

HIGH ACCURACY pH EQUIPMENT

SINGLE and MULTI-POINT RECORDERS

Cambridge design insures accuracy and trouble-free performance to a degree hitherto unknown. The Multi-Point Recorder provides on one chart simultaneous records of pH at separate sampling points in the plant. Electrodes (glass) are housed in non-clog continuous-flow type chambers and may be installed wherever wanted. Cambridge is line operated.

CAMBRIDGE pH METERS (Laboratory and Industrial models) provide continuous null indication. Sensitive to .005 pH, stable, rugged and portable. Operate from any convenient 110 volt AC outlet.

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issuance of Amendment No. 5 to Revised Price Schedule No. 30, provides that the maximum price for any grade of wastepaper not listed in the schedule must be a price "in line" with the maximum price designated in the schedule for the nearest related grade of wastepaper.

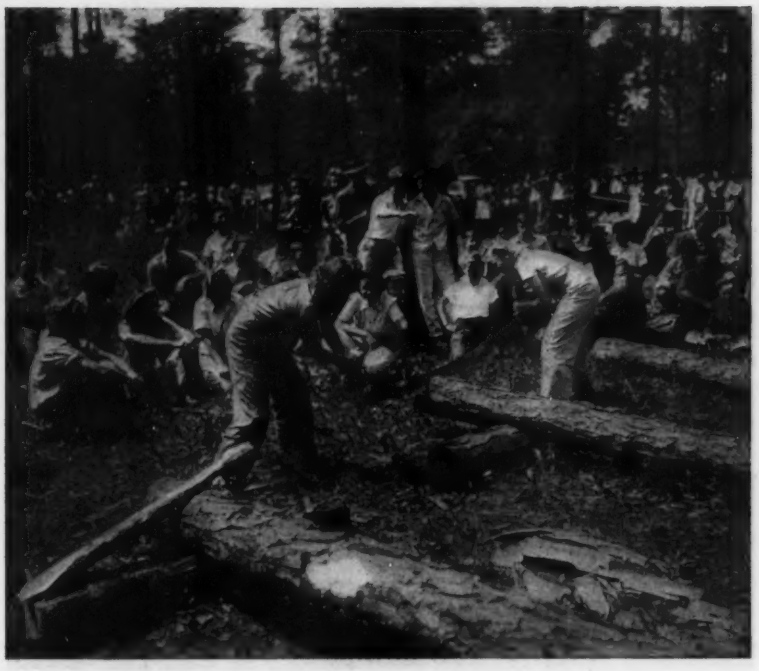
In order to determine the "in line" price, all persons, prior to buying or selling such wastepaper, must submit certain cost and materials data, set forth in the amendment, to the Office of Price Administration. Prices will then be adjusted if found to be not in line.

Revised Price Schedule No. 30 defined 36 grades of wastepaper and established the maximum prices at which they might be sold. There are small supplies of many other grades, however, known as "specialties," restricted to special uses by a limited number of mills. Prices for these special grades usually are not carried by trade publications.

Application of the "in line" prices for wastepaper not listed in the schedule preserves the proper relationship between the various commercial and specialty grades of wastepaper, based upon fiber content and physical characteristics, and the proper relationship between prices of all grades.

The data to be submitted by the person desiring to buy or sell wastepaper covered by the amendment include the following: (a) Name of grade. (b) Detailed statement of fiber content and physical characteristics of said grade. (c) Maximum price per short ton f.o.b. point of shipment for which such person proposes to buy or sell said grade. (d) Detailed statement of prices for which petitioner has purchased and sold said grade since January 1, 1941. This statement should be set forth on a monthly basis. (e) Detailed statement of tonnage of said grade purchased and sold by petitioner since January 1, 1941. This statement should be set forth on a monthly basis. (f) Statement indicating the degree of uniformity of fiber content and physical characteristics of said grade in all other purchases or sales thereof which have been made by said person. (g) All other facts requested by the Office of Price Administration. (h) Representative samples of the paper must also be submitted with these data.

When the data required for any grade of wastepaper have been submitted by any person, he need not submit data again before making purchases or sales of the identical grade.



A ***Forestry Field Day*** **featuring pulpwood cutting was sponsored by the National Container Corporation of Starke, Florida. Hollywood has nothing on these fair contestants!**

Florida now has four pulp mills and six paper mills. The narrowest machine, a combination Harper Fourdrinier and four-cylinder machine, is 36 inches in width. The widest machine is a Fourdrinier trimming 224 inches of paper.

Wherever your mill is, whatever it makes and regardless of widths, you can depend on getting the right felts from *Draper Brothers Company.*

Draper Felts Favor Efficiency

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O. J. LELOFF, Vancouver, Wash.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 114 June 25, 1942 No. 26

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Technical Association of the Pulp and Paper Industry, Fall Meeting, Statler Hotel, Boston, Mass., September 30-October 1.

WAGES AND PRICES

The exigencies of war must necessarily change normal business and everyday living. The degree of modification depends upon how large a proportion of the country's total resources are utilized. The present war effort is on such an unprecedentedly large scale that very radical changes are today occuring and they must inevitably result in permanent changes, the extent of which is unknown at this time. As the coordination of all the great military and economic forces of the United States proceeds from day to day, important transitions are noted. At the moment, wages and prices are two major economic forces exemplifying the changes taking place.

In commenting on that controversial subject, the Wage Hour Act, the June 15 issue of the *Washington Review*, published by the Chamber of Commerce of the United States, says in part: "The administration of the Wage Hour Act on June 8 received from the Supreme Court the first set-back in its extreme applications of the law. The question at issue was overtime, which the administrative agency has made a complicated and abstruse subject in an interpretative bulletin that has been productive of headaches, lay and judicial. The first proposition laid down by a majority of the Court was that there is nothing in the law that prevented an employer and his employees from trying to have weekly earnings after the law went into effect in 1938 at the same point as before. The second proposition was that an employer and his employees may by contract establish the regular hourly rate to be used in computing overtime at time and a half."

In reference to the contract, the *Review* goes on to say that, "The contract fully upheld by a majority of the Court in the principal case set the regular rate at 67 cents an hour, provided for at least time and a half for hours over the statutory work week, and guaranteed $40 a week for regular time and such overtime as the necessities of the business demanded. This meant that additional overtime would begin at 54½ hours and payment would be calculated on the contract basic rate of 67 cents. The administrative agency sought to disregard the contract as fictitious and calculate the regular rate on the $40, thus obligating the employer for many thousands of dollars extra. The four dissenting members of the Court ended, too, by disagreeing with the administrative agency; for they calculated the basic rate for overtime beyond 54½ hours, not by the contract rate of 67 cents but by dividing $40 by 54½, thus reaching 73 cents!"

Citing other cases, the *Review* continues: "The clear-cut majority decision in the first case was followed by another decision respecting overtime under different circumstances. Again, however, it was a case of a person employed by the week, for a weekly wage, and working a number of hours varying from week to week. The job was a combination of dispatcher and rate clerk for a small terminal of an interstate highway carrier. The hours ran as high as 80 a week. There was no agreed regular hourly rate, and no point at which overtime additional to the weekly wage of $27.50 was to accrue. These conditions led to an eight-to-one decision supporting the methods of calculation used by the administrative agency; methods that raise a question if Congress could have intended the results. By these methods the regular rate in a week depends upon the number of hours worked, growing smaller as hours lengthen, and vice versa. Whatever the hours worked, the number is divided into the weekly salary, and overtime for the week computed upon the result, at time and a half."

Directing attention to the constitutional questions involved, the *Review* explains that, "On the way to this conclusion the opinion of the court took the position that under the power to regulate interstate commerce Congress can regulate hours of work. There was a formal ruling, too, that the Wage Hour law was validly designed to require payment of overtime at time and a half the regular pay, where the pay is above the statutory minimum, as well as where the pay is at the minimum. If completely carried out, the implications of the declarations in the second case about the extent of the power over interstate commerce, would be far-reaching. The incongruity of features of the Wage-Hour law with present needs for production, however, stands out most prominently; for again reduction of hours of work and penalties for overtime are described as purposes of the statute."

In commenting on wages and prices, the *Review* points out that, "Price ceilings are now in effect on

virtually everything that Americans eat, wear, or use, except a limited list of food commodities . . . Yet, nothing can save prices from going through the ceilings if salaries and wages,—the biggest elements of prices, have no ceilings. There is still no pronouncement from a unanimous War Labor Board about policies that will guide the board in decisions on union demands." In a recent case the board allowed a general increase of four cents an hour when the union demanded a ten cent increase hourly. "The labor members of the board," states the *Review*, suggested a greater increase, particularly in view of the company's admitted ability to pay. The majority opinion on this point was that if the wage stabilization program is to have any meaning, wage instability should not be created solely because individual concerns may at a certain time be able to pay an increase above prevailing wage standards."

Inventory Index Rises

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 24, 1942—Index of the value of paper and pulp mill inventories in April was 140.7 compared with 140.0 in March and 119.4 in April of last year taking an average month of 1939 at 100 according to the monthly industry survey of the Department of Commerce at Washington which has just been issued.

April index of the value of paper manufacturers shipments was 165 compared with 173 in March and 140 in April of last year taking an average month of 1939 at 100 according to the figures of the Department of Commerce.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1942		Corresponding Weeks—1941	
May 9	98.2	May 10	99.1
May 16	97.3	May 17	98.6
May 23	93.8	May 24	100.2
May 30	92.3	May 31	96.8
June 6	89.7	June 7	96.8
June 13 (Prelim.)	*88.2*	June 14	99.0

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1941	85.6	89.7	92.2	96.0	98.7	99.3	94.2
1942	104.0	103.4	102.7	100.3	*95.5*	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1941	101.0	99.7	105.2	106.2	100.4	97.4
1942	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941	1942
Year to Date..	68.4	78.2	89.2	67.4	79.7	86.6	92.8	*100.2*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	97.8	....

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	93	*82*	..	..	..	..	..	..	..	..

Week ending May 9, 1942—86 Week ending May 30, 1942—77
Week ending May 16, 1942—82 Week ending June 6, 1942—69
Week ending May 23, 1942—81 Week ending June 13, 1942—72

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

UNCOMPRESSED BLACK
Continental Uncompressed Black meets the most stringent requirements for ease of dispersion and intensity of coloring. Accepted throughout the paper industry, you can depend upon it to be of the highest quality —and consistently uniform.
CONTINENTAL P
This new Continental Special Condensed Black offers advantages in cleanliness, ease of handling, and, because of its extra soft structure, assures good dispersion and retention. Continental P Black is lower in cost and is being used with satisfactory results.
YOUR CHOICE OF 2 CARBON BLACKS

ONE OF THESE TWO BLACKS WILL BEST MEET YOUR SPECIAL REQUIREMENTS

Is the carbon black you are using the right black for your products and processes? You cannot be sure until you have made tests and comparisons. Continental gives you a choice of two types—each produced to be used under different conditions and for different purposes. Continental Uncompressed Black will give more satisfactory results in certain cases, Continental P in others. Our staff will be glad to cooperate with you and help you determine which is best for your particular needs.

Continental specializes exclusively in the production and servicing of carbon black. A pioneer in introducing new and better methods of control, it has been responsible, in a great measure, for the constantly rising standards of quality found in this product. You are invited to take advantage of the experience of our technical staff in using Continental Carbon Blacks.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Paper Machine Maintenance*

By Charles S. Adams[1]

When we were first approached on the subject of preparing an article on the maintenance of paper machinery we gladly agreed to cooperate, believing that we knew some of the answers. Since that time, a few short weeks ago, the picture has undergone a rapid change.

We can honestly say that there are few materials available for nonmilitary uses. Today, the paper mills must depend to a large extent on the ingenuity and experience of its own personnel to keep the wheels turning and depend as little as possible on new material for maintenance work. Paper machinery is composed almost exclusively of critical materials. Even cast iron parts cannot be manufactured without a priority. Therefore, paper mills must look within their own organizations for brains and skill to keep their machinery running. Their present machinery must be cherished and tended with utmost care. This is especially hard to do when every effort is being exerted to keep production at its peak.

The following paragraphs may suggest a few thoughts, and we present them with the hope that they may be found useful.

Doctor Blades and Bearings

First, let us consider the simple but important item of doctor blades. For many years these blades have been an item which is constantly being reordered. These blades are bound to wear out, due to the nature of the service. Many mills have been in the habit of using bronze blades exclusively, and these are now practically impossible to obtain. Where bronze is necessary there really is no good substitute except such materials as Monel. However, a great many steel blades are now being used where conditions permit, and synthetic resenoid compositions are excellent in such locations as the Fourdrinier and press. These are more easily obtainable than the nonferrous materials. A great deal of good can be done by spending some time and energy on the proper adjustment of doctors. The lowest possible pressure between the blade and the roll which would keep the roll clean is the proper pressure to use. This will not only lengthen the life of the blade but will keep the surface of the roll in better condition. A great many blades are worn out needlessly by using too high pressures or in some cases, using the improper angle between the roll face and the blade. Even before this emergency program, we were preaching the doctrine of keeping the doctors adjusted, as we know from experience that it is worthwhile.

Another major item of maintenance is care of bearings, both antifriction and sleeve type. When an antifriction bearing fails the only simple remedy is to replace it. Therefore, each bearing should be subjected to periodic inspection and, most important of all, correct lubrication. Do not let a bearing fail.

Sleeve bearings should be looked after perhaps more frequently than anti-friction bearings, inasmuch as a bearing failure in this case is likely to ruin a roll journal. In nearly every mill there are certain bearings which seem to give trouble, and in most cases it is not too difficult to determine the cause. Usually it is either improper selection of the bearing with regard to the load, or it is misalignment or some condition which is exerting a thrust load. These chronic troubles were formerly merely sources of annoyance. Now it is possible for a single bearing failure to shut down a paper mill.

In many cases, especially at the wet end of a paper machine, phenol resin bearings have proved themselves to be very trouble free. These bearings are water lubricated and appear to be worthy of serious consideration, even in peace times.

Wire Cloth and Suction Boxes

Fourdrinier wires *(1)* are worth saving at any time, and it is doubly important at this time to get the best possible life from each wire.

The flat boxes are usually one of the greatest factors in wearing a wire; therefore, as low a vacuum as possible should be used to reduce the friction drag. A little experimenting may show that the average gain in water removal due to a high vacuum is slight. Some mills have already discovered this. One of the outstanding examples of this is shown on a pulp machine in which tests were made to determine at what point the water removal was greatest. It was discovered that no difference in water removal could be measured above one inch of vacuum. We, of course, realize that this does not apply to all paper machines, but we do believe that in some cases vacuums higher than necessary are being used.

Suction box covers should be kept smooth and flat. The automatic guide must be in good working condition to keep a wire central; and the palm pressure

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Assistant Sales Manager, Rice Barton Corporation, Worcester, Mass.

must be light to prevent damage to the edge of the wire.

Suction rolls should be watched very carefully. They should be inspected often—oftener than ever before. Inspect the packing strips and all of the gearings; keep the roll clean so as to avoid having the inside of the shell roughened. A suction roll contains many critical materials, in addition to the hours of labor necessary to make these parts.

Doctors on return wire rolls are important and should be used wherever stock tends to collect, as this condition frequently causes ridges in wires. However, a doctor which causes a roll to lag behind the speed of the wire is almost as much of a hazard. In some cases, it is desirable to put a small belt drive on a wire roll in order to use a doctor and to keep the roll running at its proper speed.

In a few cases, dandy rolls may be damaging wires, and it is always well to keep the space directly underneath the dandy free from table rolls or suction box covers, inasmuch as this may cause an impact at every revolution of the roll. This is particularly true on light weight papers.

The International Nickel Company has recently published in one of their advertisements a "Do and Don't" List which applies so perfectly to save-all pans and other nonferrous parts at the wet end of the paper machine that we take the liberty of repeating them here.

DO	DON'T
"1. When using dissimilar metals together make certain they form a safe galvanic couple. (a) Under most conditions combinations of Monel, bronze, brass, and copper are safe. (b) Usually small areas of Monel or bronze may be combined with large areas of steel or cast iron, such as Monel bolts in steel machine rails or Monel pump shafts with iron or alloy iron impellers."	"1. Never combine metals or alloys whose composition and relative corrosion resistance are not known to you. 2. Do not combine large areas of Monel, bronze, brass or copper with small areas of steel, such as steel rivets in Monel screen plates, or steel nails in Monel sheet. 3. Do not weld corrosion resisting alloys with welding rods other than recommended for their use."

Drives

The equipment for driving the machine is subject to a great deal of wear. If the drive is properly proportioned in the first place, its life should be very long. About all that can be said in regard to driving equipment is that it should not be overloaded. This condition is very likely to exist on machines which have been rebuilt and where additional dryers or similar equipment have been added without changing the drives.

There are, of course, unavoidable breakdowns, but each of these has a definite cause and its correction is a separate engineering problem in itself. About all that can be said at present is that great care should be taken in starting a paper machine because it is at such times that many failures occur, because of heavy starting loads.

It should be remembered that driving equipment today is particularly hard to obtain. Every gear cutter of any consequence in this country is overloaded with work. The same applies to all builders of clutches, antifriction bearings, and even V-belt drives.

We suggest to all mills that they assign as many men as necessary to inspect machinery throughout their mills and that they do this at all times. Have good men—men who know their jobs—and when they report signs of trouble, take care of the trouble item at once and don't wait until it breaks. We know from experience that this has saved some mills hours of shutdown time—and such hours would be many more today for replacements of certain parts are not available.

We should like to repeat that the Maintenance Department of any mill is not to be considered as a necessary evil, but rather as a major and important item of operation. During the national emergency the Maintenance Departments will largely take the place of the machine builders.

We are sure that the paper mills do appreciate the position of the paper machine builders. In the first place, we cannot secure or ship critical materials except under the rules and regulations; and in the second place, we have a machine shop and foundry very necessary for the doing of war work. We do have available, however, our staff of engineers who are on call at any time that the paper mills need them, and our engineers, no doubt, can be very helpful to the mills in finding answers to their many problems.

Additional Information

1. Goodwillie, J. E. "Saving Fourdrinier Wires", TAPPI Monograph Series—No. 2, Technical Association of the Pulp and Paper Industry, 122 East 42d St., New York, N. Y.

Maintenance and Substitution*

By Walter F. Hoffman[1]

There have been a number of articles written, as well as numerous discussions, about the importance of the paper industry in the war production program of the United States.

In spite of all of the articles written and the discussions relative to how this production of paper can be carried out in the face of shortages of supplies and materials and with the use of substitutes for many of the materials and supplies we have been accustomed to using, I am afraid that there has been too little actually done.

In the actual manufacture of paper, maintenance and substitution is important in each department. In the first place we should check on our methods of unloading and handling materials received at the mill. By proper planning these materials, in some cases, possibly can be handled with less help. The use of storage space available should be planned as far in advance as practical. The most important item in connection with the unloading of materials is the release of freight cars. Each day that can be saved from the time the car is loaded until it is unloaded means one more day that the car can be used to haul much needed freight.

In the actual manufacturing of a sheet of paper, we have to consider the materials which go into the paper. The choice and use of pulps should be carefully studied and every effort be made to use those

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Member TAPPI, Technical Director, Fitchburg Paper Co., Fitchburg, Mass.

most readily available in so far as consistent with the particular paper being manufactured. The question of the use of fillers is different for each mill and should be worked out to the best advantage to any particular mill. The use of size and alum should be carefully controlled so that only the minimum amounts consistent with the properties desired in the paper are used. Some of us have already been required to make substitutions for some of the dyes we have been using. In some cases this has been accomplished without any visible effect on the finished paper and in others this has not been so. This problem is one that generally can be handled with the cooperation of the company supplying the dye with the least change in the characteristics of the paper.

Wires and Felts

In many mills it has been the custom to change wires and felts during any regular shutdown period if there was not a good chance of the felt or wire running through to the next regular shutdown period. Also, it has been the practice in many mills to change a felt or wire instead of repairing it (and washing in case of a felt) if the machine down time would be appreciable. I believe that we must now look at the changing of felts and wires, not from the viewpoint of efficient machine operation, but from a replacement viewpoint. Every wire should be sewed and run as many hours as possible. Every felt should be washed and repaired to run as many hours as possible. In some cases several additional days use can be obtained from a wet felt by removing it from the machine for washing. If facilities are not available at the mill, the felt can be sent back to the manufacturer for repairing and washing.

Closely related to this general problem of materials and supplies is that of paper quality and of paper tests. It is the duty of each one responsible for paper production to cooperaate with the technical men in his organization in a study of paper specifications and standards. It is of the utmost importance that all standards and specifications be checked to determine whether or not any changes can be made to save certain important supplies and yet not lower the working qualities of the paper. In most cases, the consumers of the paper are willing to cooperate with the mill in working out new specifications and standards for the paper when it becomes necessary to do so due to the lack or scarcity of some material used in the manufacture of the paper.

Power and steam are very important factors in the manufacture of paper and should be conserved as far as possible. The steam plant operation should be checked to assure the highest possible efficiency. It should be kept in mind that each pound of coal saved is not only a saving in the coal alone but a saving in transportation which, in many parts of the country, is of more importance than the material itself. The turbines and steam engines should be checked for steam losses. Steam used for the heating of stock and water should be reduced to the minimum.

A check should be made on all motors to determine the actual load on each one. As far as possible any motors which are too big for the specific load should be replaced by smaller types to conserve power. The extravagant use of electricity for lights can well be checked in most mills. Many needless lights are left burning during the day and during the time the mill is not running. A study of the light required for an operation will reveal in many cases that by using different lights or placing the existing ones in different positions, better illumination will be obtained at no increase in cost or equal illumination will be obtained at a saving in electricity. The amount of electricity used for illumination is so small compared with that used for power that its efficient use for this purpose is, in many instances, completely overlooked.

Undoubtedly the one department or phase of mill operation which is at the present time, and will become more affected by the demands of the General Defense Program, is that one responsible for repairs and maintenance. The restrictions placed on many metals as well as on the output of shops and factories supplying repair and replacement parts, make it necessary for the maintenance department of every mill to work out substitutes for many of the parts we have been accustomed to purchase.

This problem alone, which, if discussed in detail, would require several times the space on the program allotted to this paper. I will mention but a few of the types of substitutions and changes which we are, or will be, faced with. Nonferrous metals will have to be replaced with whatever is at hand or is available. In some cases it may be necessary to substitute for antifriction bearings by redesigning the particular part so that a babbitt of similar type of bearing can be used. Broken parts and castings will have to be welded. Installations will have to be altered to use available repair parts. New parts will have to be made in our own machine shops. Obsolete and worn out steel and non-ferrous parts will be used to repair existing machinery.

The lubrication in a paper mill is always important but under the present conditions it is of even more importance. By proper and careful lubrication wear can be reduced to a minimum and very often the failure of a bearing can be prevented.

Many valuable hours of operating time lost through breakdowns can be saved if the maintenance engineer will check over the spare parts on hand and whenever it becomes impossible to purchase certain new parts, arrange to build them in the machine shop, and if this is not practical, plan just what will be done in case of a failure or breakdown of any piece of equipment. Plans should be made ahead of time with the welder, the machinist and the millwright as to what will be done and how certain repairs will be made when it becomes necessary to make them.

We are faced with the necessity of substituting for some of the materials used in the finishing room. A study of the paper packing methods will, in many mills, indicate where better packing can be obtained with the same materials or equal packing can be obtained with substituted materials. We must remember that the only essential requirement of the packing or wrapping of paper is to enable us to deliver it to the consumer in good condition.

Closely related to the finishing of the paper is the shipping of the finished product to the consumer. By planning shipments of paper in advance, it is often possible to load freight cars with greater tonnage and thus save cars for other purposes. In some cases it is possible to load cars to as much as twice the minimum load and yet have the load arrive at its destination in good condition. This is a problem which will become more important as the anticipated shortage of freight cars develops.

Maintenance of Refining Equipment*

By S. H. Jones[1]

Most of our fourteen points of maintenance apply to beaters, jordans, and screens. This is necessarily so because of time and space limitations and because these units are still more widely accepted as refining equipment than other sound and satisfactory machines such as the Noble & Wood mill, Hydrofiner, Sutherland refiner, Bauer refiner, Cyclofiner, precision beaters, etc. Some of our points may apply to these machines as well.

Machinery and machine parts consume critical materials, all of which are under basic control of War Production Board to varying degrees. Copper-bearing metals are almost completely eliminated and all others are obtainable on very limited quotas. These controls create serious problems to us, the suppliers, in delayed deliveries, frozen inventories, quotas below normal industry requirements, substitutes, high costs, etc., and make it imperative that you anticipate requirements far in advance.

This serious situation requires your sympathetic understanding as many parts and lines are discontinued and those stocked may be frozen for specific release by War Production Board upon appeal from distressed mills. We may not be allowed to accept your orders as the government has limited the orders you can place and we can accept under L-83, the intent of which is to stop the use of critical metals and to open our capacity for more guns, tanks, ships, etc., at direct expense of paper industry operation.

Maintaining Refining Equipment

1. Do Thoroughly and Regularly Clean all Equipment Inside and Out, Particularly if Shutdown for Week-End, etc. Clean machinery helps to make better paper. Dried and hardened stock lodged in such places as screen plates will cause inefficient operation and excessive wear. Imminent breakdown is more readily detected. Keep all painted surfaces completely covered with paint.

2. Don't Apply More Power Than Sanctioned by the Manufacturer of the Refining Machine. Too much power generally leads to shaft and bearing trouble. In a jordan engine high power input builds up pressure on the working surfaces of the bars or knives resulting in rapid breakdown of some types of filling.

3. Do Inspect Jordan and Refiner Fillings Frequently and on a Regular Schedule. Wrecks resulting from erosion or breakdown of wood fillers can be anticipated and avoided. A set of new woods at the proper time will save many a filling.

4. Don't Try to Economize by Making Your Own Wood Fillings. The fit of woods is very important. They must be tight at the bottom of the bar as well as at the top. All filling manufacturers have good equipment for making woods accurately. It's poor economy to jeopardize those last few irreplaceable Bronze, Monel and Stainless fillings with improperly fitted woods.

5. Do Rebuild Noncorrosive Fillings as Often as Necessary. Remove carefully all bars and woods. Mill true all working edges of bars to eliminate notches and waviness caused by normal wear. Reinstall the bars using new woods of the proper height. The life of many noncorrosive fillings now running can be greatly extended by such a program and it is also further insurance against wrecks.

6. Don't Discard Wrecked or Worn Out Noncorrosive Fillings. Jordan shell bars can be made from worn out plug bars. A wrecked filling may produce enough good bars which in combination with those from another wreck, may be combined to make a filling for some mill making a critical paper.

7. Do Carefully and Properly Grind in all New Fillings. This operation is very important. Most manufacturers of refining equipment have prepared bulletins outlining the proper procedures. They should be secured and followed carefully.

8. Don't Feed Sheet Pulp or Laps Carelessly or Too Fast to a Conventional Beater. A beater cannot do a good job of beating if it has to operate as a breaker also. The breaking or pulping operation is carried out better and more efficiently in one of the many strictly pulping machines. Breaking in an ordinary beater is bound to cause misalignment of bed plate and roll as well as bend the bars in both. If it is absolutely necessary to break and beat in the same engine, the stock must be well opened up in feeding and thrown in at a moderate rate.

9. Do Inspect Frequently Internal Mechanism of Beater Lighters. This operation should be performed especially if pulping is done in the beater. Broken lighter screws, etc., will permit roll to become worn out of round rendering the filling unfit for use.

10. Don't Force Excessive Volume or Consistency of Stock through Screens. This forcing should especially not be practiced now because of the increased amount of dirt in today's stocks. A screen always performs best if it screens gently with proper combination of cylinder speed, shake speed and shake throw for the grade and kind of stock being run.

11. Do Inspect Deckle Straps or Packing Bands at Open End of Screen Cylinder. These should be removed, inspected and cleaned once a week. It is highly desirable to have a spare set which may be used alternate weeks. Deckles should be inspected for wear as well as for dirt. This is important to prevent formation of lumps as well as prevent wear on cylinder heads.

12. Don't Permit Dirt to Accumulate in the Screen Vat. The increased volume of dirt under today's operation conditions makes it important to remove screen tailings promptly, delivering to a tailings system of adequate capacity, whether centrifiner, purifiner, riffler, or auxiliary screen.

13. Do Maintain Screen Shower Properly to Prolong Screen Plate Life and Secure Operating Efficiency. Proper shower functioning is extremely important. Make sure that the shower is operating at adequate pressure and with sufficient and uniform

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* Prepared for Maintenance and Conservation Forum, Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] E. D. Jones & Sons Co., Pittsfield, Mass.

scouring action to keep the plates open. Determine what pressure is sufficient (from 25 to 60 pounds depending on the grade of stock and fineness of slots) and see that pressure gage is installed either at the shower pipe or in a position to detect drop in pressure. Check pressure frequently.

Examine underside of cylinder to make sure shower is keeping plates open along entire cylinder. Clean, open screen slots will maintain their sharp, smooth edge much longer than when improper shower operation permits accumulation of fibres in the slots.

Weaving or uneven movement of the screen cylinder indicates clogged screen plates.

The life of the plates may be adversely affected by the use of white water in the shower particularly when the stock contains filler or other material of an abrasive nature.

14. Do Use Care in Handling Screen Plates. Because the hard rolled phosphor bronze and hard rolled copper of which screen plates are made are critically needed in the war program, it is important to use the utmost care in their maintenance and replacement. Use particular care, during clean ups, not to damage screen plates. Gage them for slot width at regular intervals. Consideration should be given to the possibilities of plating, rerolling and recutting of used plates.

Worn out or discarded plates should be carefully segregated from the general scrap pile and their description supplied the manufacturer so that proper disposal and replacement may be effected.

The Human Element in Maintenance and Substitution Practices*

By Peter S. Sinclair[1]

I have read many excellent papers in recent months which have stressed the value of alignment, supervision, and many other good points. I have read nothing, however, that deals with the importance of the man on the firing line in the paper mills; emphasizing the point that he perhaps plays the most important role of all, in the matter of conserving the critical metals and machinery, or other equipment in the pulp or paper mills. Some will say, and with plenty of authority to back it up, that good supervision can take care of this important item in the manufacturing of pulp, paper, and paperboard.

The men who keep it on the reel, or the boys in the mill, in my opinion, can make or break a program of this kind. I believe the supervisor, who is sold on the idea, should do his utmost in making sure that the man in the mill understands, as well as the man in the front office, that we have already entered a period where it is really a matter of survival, and that every idea of conservation, no matter where it comes from, should be given full consideration; and even though it is not used the man making the suggestion should be encouraged to make other suggestions. He also should have available at his work bench all the material published that will aid him in using good judgment in every repair he makes. This material should be in every day English and he should know all the vital elements needed for war, which will no longer be available in a few months. In our business of manufacturing Fourdrinier wires and dandy rolls, as well as servicing cylinder machines, we know the importance of cooperation of the man who throws the lever. Many a Fourdrinier wire and cylinder face has been ruined through lack of information as to what happened when the wrong method was used.

Within the last month we had the rather distressing experience of loosing a pair of faces on a process cylinder. We went in "cold" as to what might have caused the failure, but after checking the mold we missed a flat on the flange of one end of the mold. Inquiring of the operator if he had experienced trouble in operating the cylinder, he admitted that he was losing stock on one end, and had to keep the strap rather tight. It was then found that the cylinder flange had been injured in placing the mold in the vat, and instead of taking an hour or two to remove the injury, it was put into service with the result that $250.00 worth of wire cloth and service was lost. I think we who *classify* ourselves as managers, superintendents, and foremen are prone to expect our men to know all the answers. Of course they, and we also, have a great deal to learn, and those of us who, through good fortune or hard knocks have experience and knowledge of the pitfalls concerning our particular field, should resolve, that this knowledge should be made available in a new way for most of us. I mean by this, that we must become patient teachers and watch dogs in our respective mills for the duration, at least. In our own little business we have stressed that a pound of wire saved every day, by added care, makes one more Fourdrinier wire a year; that every injured dandy roll rod, cuts down the possibility of completing one whole dandy roll in months to come; that every drop of solder wasted, means the end of someone's job; until that time when the Japs are kicked out of Malaya. We are no different than most other manufacturers making products of critical materials in this regard, but I have at times been unable to conceal my amazement when in conversation with others, the statement is made "that there is plenty of copper and other critical metals." I have little war experience, but I do recall in the last war that the shells that were fired by one small artillery unit would go a long way towards keeping our plant supplied with brass for a life time. Finally, let me urge you to ask your men to take a little more time when stringing a Fourdrinier wire, or placing a mold in a vat; to use more water when cleaning; go easy with the acid and wire brush; and above all, treat your wire, dandy roll or cylinder mold as if it were "the last."

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] The Sinclair Co., Holyoke, Mass.

Plain and Suction Extractor Rolls and Their Effect On Wire Life*

By O. C. Cordes[1]

Abstract

A discussion, of the means by which the life of extractors, couches, presses, and similar equipment on the wet end of the paper machine can be extended, is given. The maintenance suggestions should reduce repairs and replacements if followed consistently.

Many of the paper machines in this country are equipped with some form of modern water removal equipment; embracing extractors, suction extractors, suction drum presses, suction couches, suction cylinder couches, suction primary presses, suction main presses, and suction felt rolls. These are all high-grade pieces of mechanism incorporating the best in machine work and parts, and they deserve special attention to keep them in good and proper operating condition which will naturally reduce the requirements for replacement parts and material to a minimum. This saving is now particularly important when the "all out war effort" demands the maximum output at the minimum expenditure of essential materials, both replacement and new.

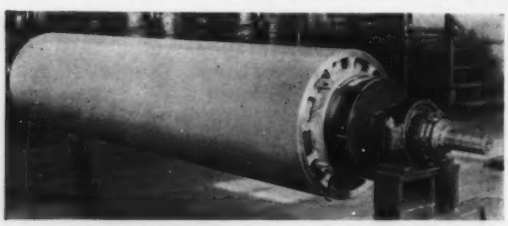

FIG. 1
Plain Extractor Roll

Plain Extractor Unit

The plain extractor unit (Fig. 1) is a most valuable adjunct to the paperboard machine and, when removed from operation, results in a marked reduction in tonnage, increase in felt cost and reduction in over-all operating efficiency. To insure the best in operating efficiency, the following rules should be followed:

1. Adjust the lever weights and consequent nip pressure to suit the furnish, and in conjunction with the weighting of the primary presses and main presses. Do not overweight so that the subsequent pressing operations are not doing their share of the work. Nip pressures of 50 to 75 pounds per lineal inch are normal.
2. The cleaning shower should be of fresh water having a water pressure of not less than 30 pounds at the shower pipe entrance and should be directed at an angle against the rotation of the roll for best results.
3. See that the top roll is in perfect alignment with the extractor roll. This should be checked at regular intervals, both with respect to faces and centers.
4. The top roll should be ground at stated intervals, depending on the machine product and speed, to insure that the crown stays within operating requirements. In addition, the life of the rubber cover will be extended materially. The crown should be checked occasionally to obtain an approximate idea of its condition.

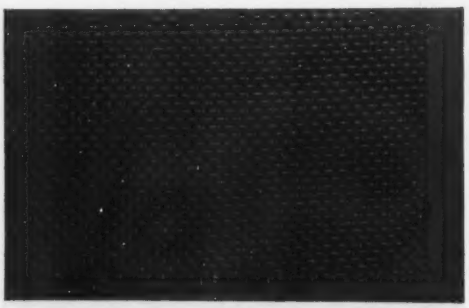

FIG. 3
This Photo Shows the Under Side of Wire after Being Whipped 22 by 24 Mesh

FIG. 2
20 by 24 Bronze Wire—Whipped and Sewed with Stainless Steel

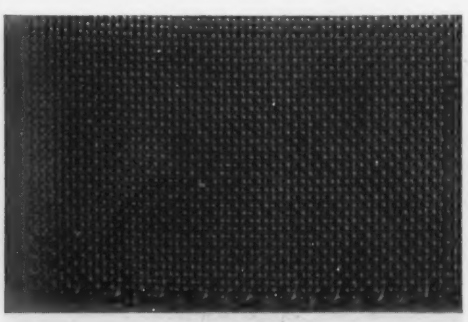

FIG. 4
Photo Shows Top Side of Wire After Being Whipped 22 by 24 Mesh

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* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Sales Engineer, Downingtown Manufacturing Co., Downingtown, Pa.

5. Allow the extractor roll to rotate in a save-all pan fed by the water from the shower. This keeps the interior of the roll clean.

The plain extractor wire-faced roll body is of rugged construction and requires few replacements or repairs if the maintenance is right. The importance of the replacements is about as follows:

Wire Face: Bronze, should average eight months or better for a single face when properly applied and treated. This applies to both sewed and welded seams.

Winding Wire: Bronze, should average three to five years in life. This depends largely on weighting and corrosive influence.

Rods: These should last indefinitely and generally wear only due to corrosive actions.

Bearings: These will last indefinitely if properly maintained to keep water out and lubricated at stated intervals.

Several types of wire faces are being used today. Some mills making high-grade bristols, etc., at slow speed use a 12 or 14-mesh backing wire and a 30 or 40-mesh face wire. Many mills use a single 20

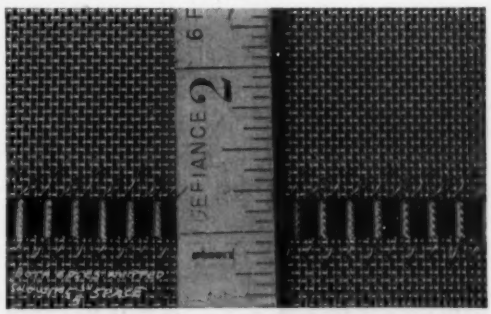

FIG. 5
Both Edges Whipped Showing ¼ Inch Space between Edges of Wire before Being Drawn Together, 22 by 24 Mesh Wire

by 24 or 22 by 24-mesh wire face. These wires are either sewed on or welded, except when stainless steel faces are used. Stainless steel must always be sewed because the welding agent does not cohere or amalgamate with the stainless steel wire. Success with welded seams depends largely on the welder knowing how to make a perfect weld without overheating the wires (*see* Figs. 2-6).

Most mills are using bronze face wires, but stainless steel face wires are rapidly coming into favor. These average an appreciably longer life than the bronze wires, approximately 1½ to 2 times as long. Stainless steel winding wires also have been used with improved results.

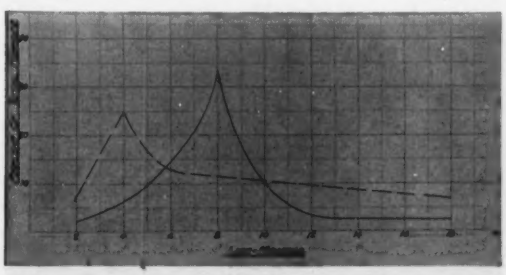

FIG. 7
Extractor Wire Life. Bronze Wire. Single Wire—22 by 24 Mesh—Solid Line. Double Wire—12 to 14 Mesh and 30 to 40 Mesh—Broken Line

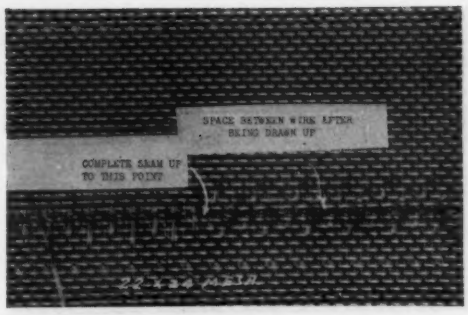

FIG. 6
Complete Seam up to This Point. Space between Wire after Being Drawn Up. 22 by 24 Mesh

The bearings should be examined and cleaned at frequent intervals, and kept full of grease; thereby keeping moisture out of the rollers. The seals should be replaced when worn.

Great care must be exercised in putting on a new winding wire. This must be applied under constant tension to the rods, which have been properly and uniformly nicked, and the tension must not be so great as to bow the rods or cord the wire. After the winding wire is completely on the ends fastened, it is anchored to the rods by soldering at 60-degree intervals Fig. 16. This is important because it prevents the wire from slipping.

The winding wire is knurled slightly before the face wire is applied to help anchor the face wire. It is often desirable when putting on a new winding wire to turn the rods 90 degrees and renick them, particularly if they are badly corroded.

Spare parts as listed below are the minimum that should be carried on hand:

One roller bearing complete (this also serves as a spare for the top and bottom roll)
One bundle of winding wire
One or more sets of face wires
One set of bronze rods

Figures 1 to 11 show the extractor unit in the machine, the extractor roll by itself, the recommended manner of whipping seams and sewing face wires and a graph showing the average and expected wire face life, as reported by the majority of mills having extractor rolls. It is to be noted that for a double bronze wire face the average life is four months and for a single bronze wire face it is eight months. It is quite possible to extend this appreciably. The stainless steel faces, while there are not so many of them in operation, show a decided trend toward longer life.

Suction Extractor Unit

The suction extractor unit Fig. 12, applied in con-

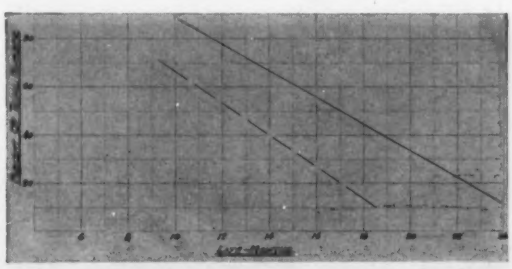

FIG. 8
Extractor Wire Life, Stainless Steel Wire. Single Wire—22 by 24 Mesh—Solid Line. Double Wire—12-14 Mesh and 30 Mesh—Broken Line

junction with a plain extractor unit, is the most recent of the high efficiency water removal combinations which have been developed for the wet ends of paperboard machines during the past ten years, and when taken out of the machine for any cause results in a material drop of operating efficiency and production. Its construction is quite different from the plain extractor in that its shell and interior construction are similar to that of a suction press roll. However, over the spirally drilled bronze shell is applied a wire face similar to that of the plain extractor. This roll, as in the case of the plain extractor, is not driven.

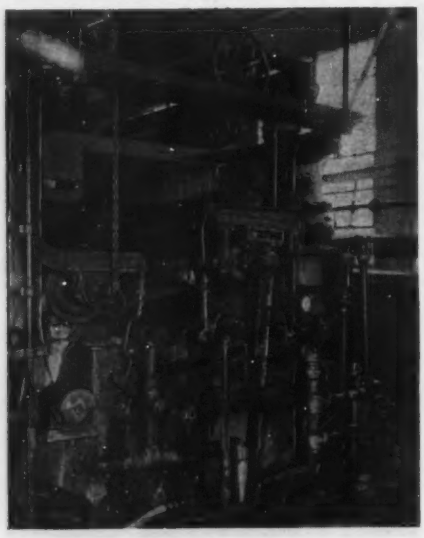

FIG. 9
Plain Extractor Unit Installation on Kraft Paperboard Machine

For maximum operating efficiency, special attention should be given to the following:

1. Adjust the weights on the levers to give the maximum dryness of sheet commensurate with the quality of sheet.

2. The suction box should be set to permit a slight vacuum leak on the outgoing side of the nip. This

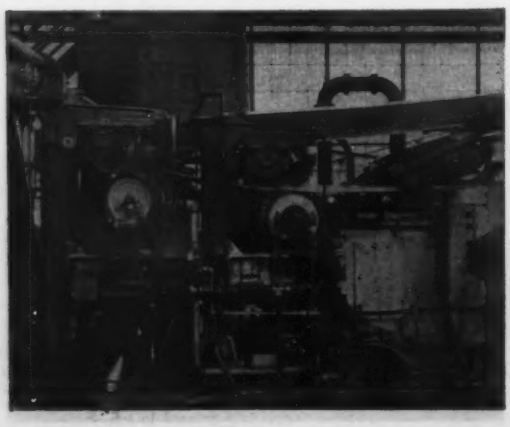

FIG. 10
Combination Plain Extractor and Suction Extractor Installation Using Short Top Felt

FIG. 11
Plain Extractor Unit Installation on Boxboard Machine

increases the water removal and also conditions the wire face.

3. The shower should be of fresh water at a minimum of 30 pounds at its entrance, and be set at an angle against the direction of rotation.

4. See that top roll is in correct alignment with suction extractor roll. Check this at regular intervals.

5. Grind top roll as required to keep the proper crown. This should be done at regular intervals so as to obtain the maximum life from the rubber cover.

The only part requiring replacement due to operating wear is the wire face, the life of which is from about three to four months. This has recently been improved by a different treatment of the shell surface. To obtain the maximum wire life, it must be put on tight and correctly united, and care taken to see that the wire face is not injured mechanically in handling. Under no conditions should a rope or chain be put over the wire face (Fig. 16).

The packing strips and end deckles should be withdrawn from the roll through the port holes, every few weeks and the interior of the roll and suction box hosed out. The end deckles should be

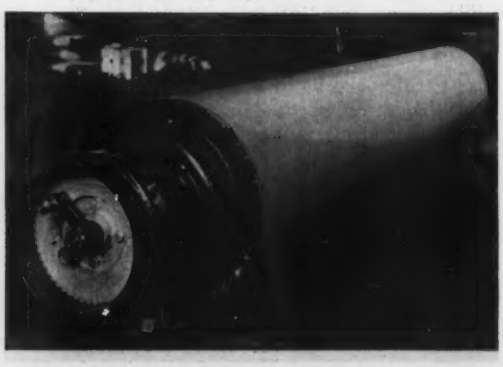

FIG. 12
Suction Extractor Roll

run in and out at every wash up period, to keep the ways and screws clear of foreign material.

In the average mill, the roll itself should be overhauled at least every six months at which time all parts should be cleaned and carefully examined. The bearing seals should be checked and replaced if necessary, the packing strips freed up and the springs cleaned and repacked with grease.

The following minimum replacement parts should be on hand:

Two or more wire faces
One main bearing
One pair packing strips and end deckles
One set of packing strip and deckle springs

Figures 10 and 12 show typical suction extractor roll installation and the wire-faced roll itself.

The top roll for the plain extractor and suction extractor rolls is normally covered with 1 inch of 90 plastometer rubber and crowned to suit the machine

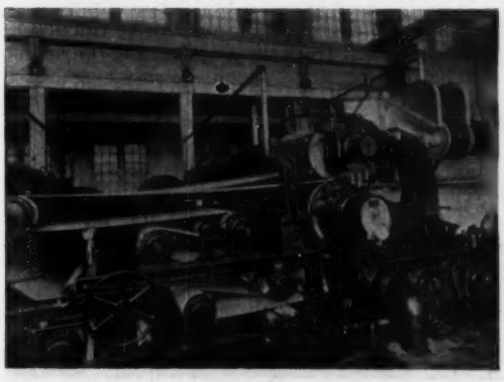

FIG. 13
Rubber Covered Suction Press on Fourdrinier Machine

width and operation. This roll should be ground at regular intervals to prevent excessive wear at the ends, as caused by transient differences in felt speed and by water action. This eliminates the necessity of grinding away a large amount of rubber when the end groove becomes acute.

Suction Couch and Press Rolls

Suction couch and suction press rolls (Figs. 13-15)

FIG. 14
Rubber Covered Suction Press Installed in Board Machine

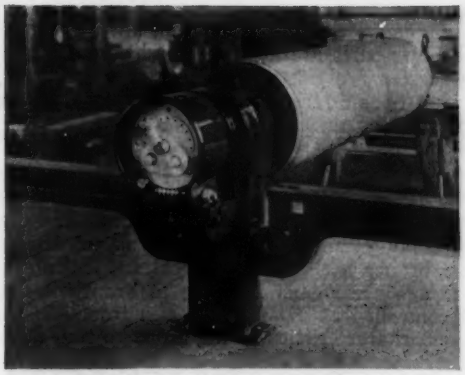

FIG. 15
Rubber Covered Suction Press Roll

have been applied on many Fourdrinier machines, and suction press rolls are used on many cylinder machines. The overall operating efficiency and technique of the paper machines is now such that the loss of any suction roll seriously impairs the production, quality of product, wire life, felt life, operating costs and safety in operation.

For the best and most efficient operation, the following points should be taken into consideration:

1. See that the rolls are in perfect alignment
2. Keep the nip pressure per lineal inch within the recommended limit
3. The top arms should be so hung that, when couched, the line of pressure will be approximately through the center of the top roll and suction roll. This prevents pinching or dragging of the rubber covers, and materially reduces the strain on these.
4. Don't try to make the suction press rolls do all the work. Allow the plain presses to take their share up to the economically safe operating capacity.
5. Set the suction box and run the felt line, so the water in the shell holes will not be thrown back into the felt.

To maintain the rolls in proper operating condition, they should be opened up approximately every six months. At this time, all parts should be cleaned and carefully examined. The bearings must be properly cleaned and repacked with the recommended grease. The bearing seals, packing strips, end deckles and packing springs are to be replaced if found to be worn or defective. At this time, the rolls should be ground to keep the surfaces and crowns at their best with the least loss of material, particularly with respect to rubber covered rolls.

The packing strips and end deckles should be removed and cleaned at each week-end shutdown, the suction box and interior of the shell flushed out,

FIG. 16
Clamps for Drawing up Wire Cover—32 by 24 Mesh

and the end deckles moved in and out to insure that all moving parts are kept free and clear. When the end deckles are not moved for long periods, they may not operate freely because of hard deposits of filler, pulp or scale.

Rubber-Covered Rolls

The rubber covered suction press rolls must be given special care and treatment, because the rubber cover is not an integral part of the roll, but is bonded to the bronze shell by mechanical and chemical anchorage. Since rubber bonding to bronze is not as well controlled as to steel and cast iron, due to the inherent characteristics of the bronze metal, the rubber cover may be loosened from the shell under abnormal conditions of pressure and pinching.

The following points are recommended as essential to the prevention of a rubber cover failure, and to reduce wear to a minimum:

1. The roll should be ground at stated periods, and in this manner only the minimum amount of rubber will be removed; for, if a roll is neglected too long, the surface erosion due to water, material and felt action is greatly accelerated and an excessive amount of rubber has to be ground away in order to obtain the required surface and crown. However, it is not desirable to grind cupped holes to a square edge; as this will waste rubber unnecessarily.

2. Set the top roll so that the effective nip pressure is along the radii of the suction roll to prevent pinching of rubber.

3. Do not carry the nip pressure any higher than required for efficient operation of all the other press parts. In other words, do not unnecessarily overload the rubber cover.

4. Wherever possible it is recommended that the felts be washed outside of the machine. Roping a felt through a rubber covered suction press puts severe strains on short sections of the rubber cover.

Where it is found that operating conditions make it necessary to rope the felt on the machine, the following procedure should be adopted:

(a) Reduce the speed of the machine to a reasonable roping speed, which may vary from 200 to 400 F.P.M.

(b) Remove all weights, levers and rods from the top roll of the suction press. This will leave the top roll entirely free to move up and down.

(c) Do not bunch the roped felt, but keep it as wide and flat as possible in the nip of the suction press. This will spread the strain over a wider rubber area and reduce it to a more reasonable value per inch of nip.

(d) The use of warm water and a good grade of wool soap has been found very effective for washing the felt and easing up on the suction roll.

5. Keep oil and petroleum products away from the rubber cover, and wipe up all excess bearing lubricant.

The following list of replacement parts is the minimum that should be kept on hand:

One—Main bearing
One—Internal bearing
One—Set of packing strips
One—Set of end deckles
One—Set of packing strip and deckle supporting springs
One—Set of bearing seal rings

Suction Felt Rolls

Suction felt rolls have found many useful and unique applications on paper machines, and have materially reduced felt costs in most instances. Hence, their loss from the machine increases the operating costs by penalizing the felt—both in life and condition.

These rolls are similar in construction to the larger bronze suction rolls, except that they are smaller in diameter and not driven. To obtain the maximum operating advantages from these rolls, experience indicates the following:

1. Each suction felt roll must have its own individual vacuum pump of ample capacity.

2. A proper separator chamber and water leg must be provided. If the vacuum pump handles all the water its capacity is greatly reduced.

3. The section box must be set so the trailing packing strip is at the point where the felt leaves the roll. This prevents water retained in the holes from being thrown back into the felt.

4. The felt should wrap the suction felt roll approximately 90 degrees for proper drive traction and to prevent the felt from slipping over the roll surface.

5. The packing strips should be so set against the shell that the roll can be easily turned by hand. Setting the strips tightly against the shell does not help increase the vacuum; but only increases the friction drag on the roll and the driving load on the felt.

6. The rolls should be opened up, cleaned and examined every six months. The end deckles should be moved in and out at every wash-up, to keep them free and in operating condition.

The construction of these rolls is very rugged and they generally operate for years without requiring any repairs or replacements. However, the following list of spare parts is recommended as the minimum to have on hand:

One—Bearing
One—Set of packing strips
One—Set of end deckles
One—Set of packing strip and end deckle springs

It is hoped that the foregoing will prove of real value to mills equipped with this type of apparatus in prolonging the life and reducing the need for replacements to a minimum; thereby making it less necessary to draw on manufacturers' stocks of material essential to our war efforts.

Substitutes for Tin-Base Babbitts

Two new lead-base bearing metals, known as Pyramid and Defender, have been developed by the Magnolia Metal Company, 120 Bayway, Elizabeth, N. J., as substitutes for tin-base babbitts which are now so difficult to secure.

Pyramid Metal is well suited to applications where bearings must withstand heavy sustained pressures, such as are found in marine reciprocating engines, water turbines, paper mill calendar stacks and rolling mill machinery.

Defender Metal stands shocks without cracking and is well suited for use in internal combustion engines, trap rock crushers and sifter machinery.

For steady high speeds and uniform loads such as are found in line shafting, electric motors of 10 to 250 hp., pumps and general machinery, the makers recommend Magnolia Anti-Friction Metal.

Further details on all Magnolia bearing metals will be sent on request. Write to Magnolia Metal Company, 120 Bayway, Elizabeth, N. J.

Conservation by Electroplating*

By D. H. Bissell[1]

The conservation and substitution of materials is today of the utmost importance, not only to every individual in varying degrees, but especially to those operating managers who are endeavoring under the pressure of the present emergency to maintain and, if possible, increase their production of essential materials. Drastic restrictions in the use of strategic materials—especially of those metals which are primarily required for the direct war effort—has forced abandonment of normal supply channels, and in many cases they have virtually prohibited any sort of continuous operation unless substitutes could be had. This situation is especially serious when it concerns such scarce commodities as aluminum, nickel, tin, copper, and many others.

Corrosion

Coupled with the necessity of more and more increased production involving 24-hour operation of essential industrial machinery, this state of affairs taxes to the limit the ingenuity of production and technical men. The question of cost has to a large extent been submerged in the necessity for a solution to this problem. Many materials are unobtainable today at any cost unless you happen to be a manufacturer with top priority ratings for airplanes, tanks or ordnance equipment. It has been truly said that we cannot win this war without an ample supply of paper, but with all due respect to the new production records of the government printing office, there is some question whether a program of conservation and substitution might not well be instituted from Washington, even though there be some decrease in production schedules of the paper mills throughout the country.

In the maintenance of equipment of pulp, paper, and paperboard mills the problem of corrosion necessarily demands particular attention. Basically any metal part can be prepared to resist corrosion in two ways: by alloying it throughout with some corrosion-resistant metal, or by suitable surface treatment. The great progress made in the development of alloys, and their value to industry because of their non-corrosive and other properties, needs no comment. However, in our present emergency the sometimes inordinately large quantities of strategic metals required for their manufacture does or should limit their use to equipment essential to the prosecution of the war, in which event there is little or no surplus available for private and less essential industry. On the contrary—and despite rather severe restrictions in the use of certain metals—it is still possible to provide protective surface treatment by electroplating in order to retard, if not entirely prevent, the ravages of corrosion. After all, corrosion does start at the surface, and if even a thin deposition of corrosion-resistant metal can be applied, that film adequately prevents corrosion penetration and preserves the underlying metal. You may recall that at one time stainless steel was utilized for automobile trim, but eventually it became the universal practice to prevent corrosion and retain the bright appearance of these parts by means of electroplating. Even though the electro-deposited coatings were extremely thin, and the parts were exposed to all sorts of weather, you very seldom could detect any evidence of rust upon such parts.

Chromium Plating

The second ever-present factor of industrial operation is the normal wear of machinery and equipment. Corrision makes its contribution here also, but eventually all moving parts wear to the point where they must either be repaired or replaced. In this field certain hardening processes have provided advantages and reduced maintenance costs, and here also, industrial chromium plating has served a useful purpose, especially in the pulp and paper industry. The extreme hardness of chromium, which is nine tenths as hard as the diamond itself, has been effectively utilized through the medium of electroplating, not only to provide longer life for equipment, but also to maintain new equipment performance, retain close tolerances and provide hard and smooth surfaces, which are literally reflected in the appearance of the product itself. If there is no substitution available the one remaining course is to somehow repair or restore that useless equipment. If the difficulty arises because of wear, it may be entirely practical to electroplate the worn part with the most suitable metal available, building it up, grinding to exact precision if necessary, and thus restoring it to its original exact size and condition. Sometimes parts are erroneously machined undersize, and rather than scrap these parts, they are reclaimed by electroplating. A case in point is that of machine gun parts of intricate design which are being saved from the scrap pile at only a fraction of the cost of a new assembly, not to mention the maintenance of quantity and quality production and the saving of one of our most important weapons—time.

Screen Plates

One of the most successful applications of industrial chromium plating in the paper industry is on screen plates. Ordinary bronze flat or curved screen plates had for many years been standard in this operation, with no substantial improvement in their conventional design. After only a few weeks' operation, worn, rough and irregular slots were more or less accepted as a matter of course. Production losses up to 40% of maximum screening capacity were sometimes reported within no more than a single week's operation. Excessive slot wear effectively prevented consistent size control, and forcing the velocity to counteract the effect of clogged slots only served to aggravate this condition. The irregular slots also passed quantities of dirt and frequent cleaning during daily operation was necessary in order to operate at even approximately normal capacity.

With the advent of chromium plating and its early application to screen plates, progressive improvements were accelerated through the cooperation of screen plate manufacturers who improved their own operations to meet the higher base metal and finish re-

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Assistant Treasurer, Chromium Corporation of America, New York, N. Y.

quirements. More pronounced smoothness of finished slots became necessary and size tolerances in the slots were reduced to new standards of precision. The importance of proper screening and its more consistent control received increased recognition. These and other new developments were readily accepted, and in a comparatively short time have now become recognized as standard practice resulting in improved screening efficiency, finer slots, cleaner paper, greater screen capacity, longer life and lower operating costs. The difficulty of adequately chromium plating the inside of finely-sawed slots where adequate protection is most essential developed new methods of cutting these slots, such as those utilized in the open-back screen plate—widening the back slots, permitting easier release of the stock and reducing the possibility of clogging. Aside from the adoption of chromium-plated screen plates there have been other improvements in the design of conventional unplated plates, and to some extent stainless steel has been utilized with some success.

These developments are directly related to the subject of conservation, for they have materially prolonged the useful life of the average screen plate. One mill which has used hundreds of plated screen plates over a period of years has obtained an average of four times the normal plate life. Another reports imperceptible wear after 14 months of service. After 8 months of use in another mill, chromium-plated plates were found to be in perfect condition, but the slots of unplated bronze screens installed at the same time were roughened and worn as much as 0.002 inch during the same period. Elsewhere, unplated plates with 32-cut slots usually wore from 0.001 to 0.0015 inch within a 3-month period, depending upon the rate of operation, but chromium-plated plates under the same conditions were kept in service for over six months with no sign of wear. It has been possible to decrease slot sizes advantageously without loss of production as in the case of a board mill where chromium plating permitted the use of 24-cut instead of 32-cut slots without production loss in comparison with a detrimental decrease in output caused by no more than 0.002 inch slot reduction due to the wear of unplated plates.

Such improvements bear a distinct relationship to the present discussion of conservation of materials, for not only is it possible to extend the life of such equipment as screen plates by improved design and better surface preparation, but it is possible at the same time to increase the quantity and improve the quality of production while actually decreasing maintenance expense. Due to the present emergency the use of bronze and copper is seriously restricted, which affects the procurement of new screen plates. This brings to the fore the question of salvaging old plates by having them reclosed and recut. Although chromium plating of recut plates has not heretofore been generally recommended, as an emergency measure it may be necessary to utilize this method until such time as new plates can be released.

Press Rolls

The reclamation of press rolls offers another possibility of conservation or substitution. The advancement of plating technique has made it possible to build up to a limited extent, worn, porous or corroded rolls, grind accurately to the desired size, and chromium plate to obtain a perfect surface from which all imperfections have been removed. This frequently is less expensive than the application of a new shell, even though the material for it might be obtainable. The long-wearing characteristics of chromium-plated rolls preserve their original precision, simplify mechanical adjustments, and provide that longer life which is of especial importance under the current conditions.

To makers of fine papers, improvements in printing and embossing processes should be of interest. In rotogravure and other fine printings, chromium-plated rolls have become generally standard practice. The finest of engraving is not affected by the plate—instead of the design being dulled, its sharpness is accentuated and the printed impressions are maintained at their original clarity for many times the normal life of copper printing rolls. Specialized plating equipment and procedures have been developed to insure an even deposit of the plate throughout the surface of these rolls, thus obtaining perfect functioning of the doctor blade. The use of chromium plating has made unnecessary the preparation of several identical rolls in order to properly print extremely long runs—one plated roll usually answers the purpose. Somewhat the same advantages accrue to embossing rolls, and in addition the plated rolls are less subject to rust while in storage, and run unusually clean in service.

Numerous other rolls used in the paper industry have for years been chromium-plated with marked success. These range in size up to drums 12 feet in diameter by 6-foot face, weighing approximately 15 tons. These have been successfully chromium plated for the principal purpose of producing and preserving the highest possible surface finish. In work of this kind the required perfect surface is usually unobtainable by ordinary cleaning and polishing methods, and it is necessary to drill out and then plug up every defective point in the surface of the drum, the smallest defect in which might cause rejection.

Tools

There is substantial economy in restoring worn parts such as small tools, gages and dies by industrial chromium plating, as well as a material saving in the consumption of strategic metals. This contributes to the conservation program through the medium of salvaging tools and small parts, reducing corrosion of such pieces, protecting their essential precision, and increasing the output of metal-working tools. Only a few thousandths of an inch of chromium make it possible to save vital time and scarce materials. Many who started using chromium plating for the salvage of certain parts have found that the service life of these parts was so materially improved that they are now specifying chromium as standard on these parts even when new. Machine tools which were too worn to meet present day precision standards can in some instances be reclaimed and put into active production. The need for new parts is sometimes eliminated by reclamation.

Limitations of Electroplating

It must be remembered that electroplating has its limitations and is by no means a universal remedy. Those of us who are frankly prejudiced in favor of this sort of medicine are therefore somewhat in the position of the elderly spinster, emphatically denying the story of her approaching marriage but nevertheless thanking God for the rumor. Noteworthy im-

provements in the art of electroplating have been made during the last several years with the result that it is possible to achieve results which were formerly impractical if not impossible. Other than those standard applications, each is virtually a separate engineering problem, and requires exhaustive study as to base metal characteristics, operating conditions, etc. In the last analysis I believe that there is still much which can readily be accomplished in the field of conservation and substitution by the proper use of electroplated metals, and those who are immediately concerned with this activity are giving it their unremitting attention. We do not know the extent to which further restrictions of the use of certain metals may be applied, but there will be a continuous search for practical substitutions wherever possible.

Industry today plays a leading par in our universal and determined objecive of winning this war. It must forego the idea of "business as usual", concentrate its production on the most useful materials and products, and endeavor to maintain efficient plant operation even under the handicaps of materials and labor shortages. I believe that the profit motive should, for the time being, be definitely sacrificed to these objectives. In any event, any excessive profits will be taken care of by high taxes. The demand for increased production can rarely be met by plant expansion or the acquisition of new and modern equipment. The best answer to that is to do the best we can with what we have. This is perhaps more of a problem in the manufacture of fine papers than it is in the average mill, for you cannot permit much relaxation in the standards of product quality without taking a backward step from the progress already made.

Fourdrinier Wires in the War Effort*

By Harry G. Specht[1]

Last fall and this spring, the paper mill wire cloth manufacturers were able to meet the heavy demands of the paper industry for the manufacture and delivery of Fourdrinier and cylinder wires. They were able to do this because there is sufficient available equipment, buildings, and machines to handle the requirements of the paper industry.

In December and through the spring, a shortage of labor was indicated in certain shops. This condition was met partially by the addition of new men, but primarily by working overtime, up to 70 hours per week.

A shortage of copper, tin and zinc was indicated but the wire manufacturers throughout the country joined in their efforts with a committee of the paper industry, to have the government supply us with our raw material needs. Until recently the necessary material has been supplied to meet the heavy demands of the paper industry.

No Shortage of Paper

Last year, the paper mills, in anticipation of material shortages, and due to government advertising a paper shortage, placed heavy orders with the wire manufacturers, with the result that heavy shipments were made to the trade during the past nine months. The situation has been a hectic one for us. There was no need for this situation developing as it did, had there been a closer understanding between the paper industry, the government, and the wire manufacturers in planning their needs.

Three months ago, we were working 60 hours a week; today, we are working less than 40. Three months ago, the government was advertising a shortage of paper and urging everyone to conserve paper. Today, waste paper is being burned as there is a surplus of this material collected beyond the needs of the industry. Advertising has been cut down, resulting in many mills going to shorter hours with others closing down and laying off their complete force of men. This is not a happy situation for us and for you to face at this time and it certainly is confusing for the paper industry, having changed from a shortage of paper to a surplus of paper within thirty days.

To make matters worse, many large companies selling cigarettes, bread, food products and cigars are still advertising over the radio that they have eliminated wrappings they formerly used for their product, in order to help the war effort, due to the shortage of paper. Each and everyone of you when hearing these statements over the radio or seeing them in advertising, should take it upon yourself to write these paper customers, informing them that there is no shortage of paper.

Therefore, today the wire manufacturers not only have their original surplus of equipment to meet the paper needs, but they have the necessary manpower required for their work.

In regard to copper, tin, and zinc, the situation is still confused. The government has allocated to our industry, sufficient raw material to carry on for the next few months, and I can see no immediate shortage of raw material for Fourdrinier wires, unless the government changes its viewpoint in regard to the paper industry. The raw material needs of the wire industry are so small in relation to the size and importance of the paper industry, that I believe the government will recognize these facts and supply us with our needs in the future as they have in the past.

Last week, a second factor was injected into the picture, which created more confusion than was necessary. An order was issued to the effect that we were "not to ship wires except for paper machines for which there are only four or less wires per machine in the mill stock at the time of shipment." Paper mills were also informed of this fact, with the result than 90% of the mills are holding up shipments on wires until they can find out what is involved in the ruling and until they can work out their wire needs.

Four wires represent a year's supply in one mill and only a month's supply in another and with this basic fact before us, we can readily understand that a change will have to be made in this ruling to accomplish the results desired by the government in regard to conserving critical materials.

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[1] Vice Pres. & Gen. Mgr., Eastwood-Nealley Corporation, Belleville, N. J.

Wire Inventory

Therefore, with the drop-off in the paper industry, with the closing down of mills, with the confusion resulting from recent orders issued to the trade—it is difficult to say at this time just what the future holds in store for us.

These facts are pertinent:

1. The wire industry can supply the needs of the paper industry on a sensible basis.
2. The necessary raw materials to keep the industry supplied with wires will no doubt be allocated by the government when the facts are properly placed before them.
3. The paper industry should adopt a sensible schedule for purchasing its wire requirements so that better planning can be effected in the future than has been prevalent in the past.

Assuming that a two months inventory might be considered a practical minimum inventory for the industry, we suggest the following procedure in regard to wires.

1. Every mill should determine its average life on each machine and establish the number of wires necessary for a two months' inventory.
2. They should reduce their inventory to this number of wires and maintain it on that basis.
3. They should place orders with their wire sources of supply for their next six months requirements, so that proper scheduling and planning of their requirements can be made.
4. That definite shipping dates be specified against these wires to help plan their manufacture and delivery.
5. That each time a wire is taken out of stock and put on the machine, the wire manufacturer be notified to ship one wire and to put one wire in stock.

If the above procedure is followed, wire stocks in the mills will be held to a minimum, the wire manufacturers will be able to definitely plan their raw material requirements with the government, helping the materials divisions to better plan their work in Washington, and to better schedule their allocations in regard to the needs for raw materials. The wire manufacturers will also be able to schedule their looms and they will be able to hold their inventories to a minimum in conformance with government regulations.

Saving Fourdrinier Wires

In regard to conserving wires and making suggestions for improving their life, we believe the wire manufacturers for a great number of years have been outlining to the paper industry, the best means for securing the maximum life from the wires supplied to them. Two recently published articles, we believe, cover the necessary information for the paper mills in this regard. The one article was written by Gus Ostenson, of Camas, Washington, and published in *Pacific Pulp & Paper Industry* of December, 1941. The second article was prepared by J. E. Goodwillie of the Beloit Iron Works for TAPPI. This treatise was published in book form as TAPPI Monograph Series—No. 2. In these two articles, the paper mills will find sufficient information to follow to obtain the maximum life from their wires.

We hope that the explanation in regard to the wire situation as of today from the standpoint of materials has been clearly defined and that the suggestions referring to the two published articles on the life of Fourdrinier wires will be accepted as our contribution to the present problems concerning us in the emergency in which we find ourselves today. If we will all continue to conserve wires to the maximum and if we will plan our requirements on a more intelligent basis, we will be contributing to the war effort by conserving the critical materials so necessary in the war program.

Fine Papers and the War Effort*

By B. L. Kassing[1]

Shortages

I am sure that it is unnecessary for me to mention the reasons why we are faced with many new problems. The direct reason is shortages. I would classify the shortages as coming under one or the other of the following headings:

1. Raw Material
2. Maintenance Material
3. Operating Supplies and Services
4. Men

Since shortages exist in these categories, then our problem is to learn how to operate under conditions of scarcity as compared with conditions of abundance. This, I think, requires a change in the basic psychology under which we as fine paper producers have operated.

In war times, fine papers are more or less of a luxury. Justification for luxury under this war economy is certainly difficult if not impossible. Thus we must face operation with only the bare minimum of necessities. There can be only one result of such operation and that is a decrease in features which we have taken to represent quality. We must dispense with nonessential features and qualities; in other words, fine papers cannot be quite so fine. It is important that our customers realize this point and it is just as important that we ourselves realize it. Further, it can happen that there may be less fine papers generally available.

The instincts of a free competitive system are so ingrown with us that it is distasteful not to be allowed to do the best that we know. Today, however, we have an added responsibility which is, I think, of paramount importance. This is our duty to our country. Thus it becomes a priviledge to save and save, conserve and conserve in order that we may make some small and indirect contribution to the end that we may again work under a system of free enterprise. Let us all make this contribution gracefully and without reservation.

Next to our duty to the country is our responsibility to our company. How can we operate under so many restrictions, producing papers which, although they may lack the extra features of 1940 paper will still do

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[1] Paper Mill Superintendent, Hammermill Paper Co., Erie, Pa.

the job for which they are intended? How can we keep running in the face of our inability to obtain many things which we have come to regard as essential?

First let us consider raw materials—that is, pulp, rosin, alum, starches, dyes, filler, pigment, and the many other materials that may go to make up the final product. With many of these, if not all, it is not a question of substitutes since such do not exist. We can, however, by careful control extend our present supply. By using less we can create surpluses available for conversion to direct war use. A pulp surplus can be created by the use of filler and elimination of heavier weights. Colors can be made lighter or eliminated if necessary, to save those intermediates which are so important. In other words, we can and must sacrifice some nonessential qualities as a contribution to the war effort.

The simplification program proposed to the fine paper industry is a step in this direction. This is, I believe a sound basis for the conservation of important resources. It is a democratic and voluntary method of creating needed surpluses. If we do not police our own industry then the necessary policing will be done for us and mandatory regulations will be imposed to secure cooperation. Such regulations are certain unless we honestly support and live up to this program. We should not sabotage to any degree this earnest effort toward conserving needed resources.

Maintenance

The problems of maintenance material are extremely complicated and most maintenance materials are extremely scarce. Equipment will wear out and failure will occur. What are we to do about it?

First, I think, we must make more careful and more critical inspection of our equipment. This is necessary to prevent rather than to repair failures. This is a good practice any time. Today it is a vital necessity. Let us find the hot bearing before the babbitt is on the floor. Let us replace the worn journal before it breaks and tears off a felt or wire. Let us find the rusted bolt under the doctor before it drops into the press.

Second, I would believe we should examine spare parts, obsolete equipment and the make-up of our scrap pile. Most of us, I am sure, have unused piping and valves, discarded saveall trays and similar things which have been replaced. In many cases these can be made usable. Today there is a lot of gold in paper mill scrap piles and salvage yards.

Third, and perhaps most important, we must be resourceful. We must be open minded and try to use those few materials which are not now under priority restrictions. We must be ingenious and use our heads instead of stainless steel, copper and monel. There must be some usable substitutes for such items. We can and must find them.

This is the type of problem which we must face if we are to maintain any degree of quality and efficiency of operation. If collectively we attack the problem with all the experience at our command, it is not impossible that we may benefit from today's bitter experiences. It is possible, I believe, that we may find materials even better and more resistant than the materials which we have been using.

Next, operating supplies and services. By operating supplies I mean felts, wires, rubber roll covers, lubricants of all kinds and other things which are consumed more or less slowly in the manufacturing of paper. By operating services I mean those services which we require for our operation. These are principally power and railroad services.

With our operating supplies, conservation means getting every hour of service possible. It means patching and sewing wires and felts and running them to complete failure. It means more time lost in washups. It means running press rolls until the covering is completely gone and that we may have to lag pulleys to compensate for small diameters. It means that we must plug gouged or damaged press rolls and have them patched instead of recovered. It means, in the case of lubricants, that we must keep the grease and oil in the bearings and not permit it to escape and be wasted. It means that we must treat these operating supplies with more than our usual respect and as though there were no more to be had.

Power and Transportation

In the case of power and railroad service, these too must be conserved. Perhaps we must run on freer stock so that more power is available to our industry. Perhaps power must be saved to ease the transportation problem where coal is used for steam production. In localities where a shortage of power exists and where power is vitally needed for war industry we may be obliged to sacrifice some part of our production that the more essential job of making war equipment in abundance can be done.

Railroad service must be cut to a minimum. It has been said that the paper industry consumes about 10% of the country's transportation facilities. This must be reduced by heavier loading of cars and reducing transportation requirements where and whenever possible. Above all, we can help by prompt loading and unloading of cars. A car idle in our yards is a disgrace. Our motto must be "Keep them Rolling".

What can we do about the shortage of men which we are just beginning to feel? I believe that we should take every possible measure which will reduce the man hours required for operation. We should try to train men more rapidly. We must get along with men of poor quality and of less experience. This means a loss in efficiency which can only be partly compensated for by more and closer supervision. Operating under such conditions will be part of the sacrifice that we must make to win the war.

Summary

To summarize a not too pleasant situation, it appears that we must prepare to operate with only the barest necessities. We must sacrifice unnecessary features. We must be frugal in all things except ingenuity and the spirit to do our best under trying circumstances. We must realize and so act that our savings in material, power, transportation and men help to create the reserves necessary to win the war. This will be fine papers' contribution to the war effort.

L. P. Jones Made Manager

The River Raisin Paper Company, Monroe, Mich., announces the appointment of Lawrence P. Jones as manager of its branch plant at Washington, Pa.

Mr. Jones has been identified with the company since the early part of 1936, in the capacity of sales representative, with headquarters at the Washington plant.

Cleaning Methods for Felts and Wires*

By T. F. O'Brien[1]

A great deal can be done to avoid the effects of wartime shortages in vital paper mill equipment and materials, by the institution of well-planned reconditioning, maintenance and salvage methods.

Naturally, one of the first items which comes to mind is the subject of wires and cylinder molds. Here the best grades of copper and bronze wire are essential. The properties of maximum strength, resistance to wear, and in the case of Fourdrinier wires, extreme pliability, must be combined.

If these metal objects, vitally important to the operation of every paper mill, are to be properly conserved, it is certain that any methods which shorten wire life must be avoided. And, it would seem logical that every mill take a good look at its own practices with regard to the maintenance and particularly to the cleaning of these wires in order to make sure that practices are not being followed which do shorten wire life.

For example, it is still common practice to sour these wires with either oil of vitriol (sulphuric acid) or muriatic (hydrochloric acid). This method brightens, but etching of the smooth surface of the wire, particularly after the use of hydrochloric acid, causes sticking of the stock and naturally weakens the wire itself.

It is easy to be deceived by the bright appearance of the soured wire. It certainly looks clean. But when you remember that this bright, new appearance means that the acid has eaten away not only dirt but a measurable quantity of the wire itself, the raw acid method does not appear so good. It is well to remember too that a number of the dirts which collect on these wires are not attacked by these acids.

Unless raw acids are used with care, it probably is much better to use one of the special compounds that have been perfected which provide ability to remove not only the oxides or tarnish on the wires, but also all other dirts as well as pitch and other hard-to-remove deposits. These compounds are usually acid in reaction but through the use of inhibiting agents, corrosion effects on the wire itself during the period of cleaning contact are eliminated or reduced to negligible proportions. At the same time, the more effective of these compounds also deflocculate pitch and other stubborn deposits so that they can be easily rinsed away.

Felts

Another outstanding field where proper conservation methods will help solve the problem of shortages, is that of the paper mill felt.

Here again, commonly used but harmful cleaning methods of reconditioning can cause serious damage to the felt fibers and reduce felt life by proportions which may not have been worth worrying about in peace time but are extremely serious in war time.

Let's remember first of all that the grade of wool fiber used in felts is at the top, because these felts must be tough and strong, as well as unusually springy and pliable. If the nap did not return to its original position after each trip through the machine, the effectiveness of the felt would be greatly reduced. And yet, the more commonly used methods of cleaning felts tend to eliminate this springiness which is so essential to proper machine operation.

Raw wool is impregnated with a layer of natural oil and the soda ash solution is used to scour and remove this oil to prepare the wool for further processing. The cleaned wool fibers of a paper mill felt are not at all resistant to strong alkaline solutions. Indeed, wool may be regarded as soluble in alkalies. As a result, it is not advisable to use soda ash and many other alkaline salts. The alkalinity of such solutions is actually far in excess of the maximum prescribed by textile experts when considering safe alkaline strength for woolen fabrics.

Alkaline solutions are not effective on certain forms of felt loading, such as lime or alum. Once again, the common practice for treating such felts was the use of hydrochloric or sulphuric acid. Wool is resistant to acid action, particularly in low concentrations, but the result of acid washing of felts is a tendency for the felt to harden and to load up faster after each succeeding acid treatment. Here again, felt life is appreciably shortened.

Common soap powders are still frequently used for washing felts. Yet, the notoriously poor rinsibility of grease or high titer soaps in such compounds should make it obvious that you cannot wash and recondition a felt, that is remove "loading-up material," by the use of a washing compound which tends to add to the load rather than to remove it because of this poor rinsibility.

This job of reconditioning a paper mill felt is essentially one of getting out all of the dirt possible and at the same time of restoring the original springiness and depth of the nap. To do this, you must first of all have effective wetting action. In other words, your cleaning solution must get deep into the body of the deposits of foreign matter, and get there fast. When a felt is rapidly wet with a proper penetrating and dispersing type of cleaner, these dirt deposits are loosened. Good rinsing will then remove practically all of the foreign material from the felt, leaving it soft, pliable and springy, with virtually completely restored nap.

There are effective cleaning materials for use in washing felts which accomplish these cleaning results without any attack on the strength of the wool fibers. Many of you are familiar with the technically developed felt reconditioning compounds on the market.

Certainly, anything that you can do during the months ahead of us when wool will become more and more critically short, to prolong the life of your felts, is a worthwhile contribution to the war effort and in addition to your own need for speedy paper production.

Cleaning Machine Parts

A third phase where reconditioning and salvage is important today, is that of making sure that pipe and fittings, as well as machines and subassemblies,

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which under ordinary conditions would be discarded or set aside, are properly cleaned when they are salvaged for re-use.

Considering the condition of some of the fittings you can think of right now, this looks like a pretty tough assignment, but it isn't so bad if the proper methods are used.

You can remove practically all of the dirt by boiling this equipment in a cleaning and stripping tank which will remove oil, grease, paint and most normally-met-with deposits. After this boil-out in a suitably designed tank, using a heavy duty alkaline cleaner, the equipment is then rinsed. The time of boiling in the cleaner may be from 3 to 20 minutes, depending upon the amount and kind of dirt to be removed. The rinse should be prompt and very thorough. You may use a rinse tank or, as is the case with large units, simply set the object on the floor and hose it off with water under pressure.

Drying of this equipment may be accomplished by immersing the work for two or three minutes in boiling water until it picks up sufficient heat to become self-drying upon removal, or it may be blown off with compressed air, or put in some warm place such as alongside or near a boiler. Prompt drying is of course important to prevent rusting.

The same method and material can be used for cleaning screen plates, eliminating a hand picking operation.

Of course while we are discussing the question of conservation, it is well to consider the problem of suction rolls. You all know that the hand punching method, using electric drills after holes are entirely blocked, takes time. But, since it is impossible to accurately maintain centering on such drills while the clogging is being removed by the punch-out method, you can be sure that not only rubber but also some of the base metal is removed every time that method is used. Rubber and metal are critical war materials, and any method which will insure nondestructive cleaning of suction rolls is well worthy of consideration. A suction roll cleaner is available which has proved effective to eliminate the troubles caused by badly clogged rolls and for use on a routine basis to prevent the building up of deposits which ultimately cause clogging.

Another Point Which Deserves Study

These points cover the major phases of paper mill operation where adequate cleaning and reconditioning can meet the problems imposed by shortages of metals and other materials.

However, we would like to point out that under your high speed production schedules of today, the problem of cleaning machines both on the floor and in the repair shop prior to maintenance or adjustment operations, is one which deserves some study.

The method developed by our company for cleaning the motors and chassis of automobiles and trucks is equally adaptable to the cleaning of machines on the floor without any need for dismantling. The portions to be cleaned are simply sprayed with a mixture of our emulsifiable solvent concentrate and kerosene or safety solvent. This is allowed to soak in for about fifteen minutes and then the cleaner, and together with it all dirt, grease, oil, etc., is flushed away with water under pressure. This treatment leaves machine surfaces thoroughly clean. Yet, there is no possible damage to metals, leather, rubber or any other materials of construciton in these machines. This same method can be used for cleaning parts in the repair shop.

A Final Thought

As a final thought in this connection, we face shortages in another commonly used material in the paper mill, and that is in fuel oils. If you use heavy fuel oils in your boilers, you are familiar with the troubles caused by accumulating sludge deposits in your storage tanks, which clog screens and oil lines, burner orifices, and tend to carbonize at the burner. In fact, it sometimes happens that this carbonization at the burner is so serious that the burner has to be dismantled and some parts displaced. If you could prevent this sludge formation, costly delays as well as a serious reduction in burner efficiency could be eliminated. Also, the loss in oil involved when you have to discard the sludgy oil at the bottom of a badly sludged tank could be reduced.

This can be readily accomplished by the use of a chemical compound developed for this purpose. A few drops of this material per gallon added to the heavy fuel oil to maintain the required concentration at all times in the oil storage tank, will prevent the formation of sludge deposits so that all these troubles can be forgotten.

In addition, where you have a badly sludged tank this same material added in somewhat higher concentration will completely disperse the sludge existing in the tank toward the body of the oil. So well is this dispersal accomplished, that the oil in that tank can be burned just as effectively and economically as if no sludge had ever been present. Thus, you can avoid not only the unpleasant job of mucking out sludged-up tanks, but you can avoid the material waste of oil which inevitably occurred when such tanks had to be mucked out.

We of the Magnus Chemical Company have always assumed that our job was primarily one of giving you all the help we could in solving your cleaning problems. At all times in the past a Magnus service man would respond to any calls you made upon him for help.

Today, with gas and tire shortages, it is becoming increasingly difficult in all instances for a representative to visit each mill in order to make the on-the-spot analysis of conditions requiring study. We are going to continue to do this as much as we possibly can, but we would like you to utilize as far as possible, the new setup in our Technical Department which is now geared up to take over a part of this work. When you supply us with the essential data, such as the type of operation involved, the nature of the stock, the condition of your water (hard or soft), we will prescribe the cleaning material which seems best adapted to your conditions, together with recommended methods of use. Our twenty years experience in the working out of all types of cleaning and allied problems is at your disposal without obligation.

A suit which was brought by Mrs. Dorothy Chappell, of Chicago, and other bondholders to recover property of the defunct Tomahawk Pulp and Paper Company, Tomahawk, Wis., was ordered dismissed by Judge Louis R. Schwellenbach, of Spokane, Wash., in federal court at Milwaukee, Wis., last week.

Maintenance of Control Instruments in the Pulp, Paper, and Paperboard Industry*

By Henry O. Ehrisman[1]

The pulp, paper, and paperboard industry is finding it increasingly difficult to obtain new or replacement equipment, if that equipment involves the use of critical materials which are also needed to make things which can shoot, swim, or fly. The industry must face that fact, and mill men will just have to accept the situation as part of their sacrifice in the all-out war effort. But, however willing you may be to cooperate in the nation's war program, you still have the operation of your mills to think about.

Priorities

It hardly seems necessary to advise paper mill men to take care of their measuring and controlling instrument, or to explain to them the reasons for urging such care at this particular time. The general wartime conditions are known to us all, and the circumstances surrounding the subject of priorities have become painfully familiar to most of us.

So far as priorities are concerned, the indication is that your worries are going to be not less, but greater. It is apparent that the P-100 A-10 rating is losing its purchasing power; and you will find it unwise to place too much faith in that blanket rating from now on. At the present time that rating is not high enough to enable you to obtain deliveries on thermal system repairs or replacement parts for a control valve. As you undoubtedly know, you cannot buy new instruments under this blanket rating. Restrictions on the use of P-100 for repair parts and replacements can be expected to increase as soon as present stocks are depleted. In short, every order not only for instrument equipment but for supplies of any kind which are made, wholly or in part of critical materials, will be individually rated, on the basis of its essential importance and its relation to the war production program.

With such prospects ahead, it becomes more important than ever that we take good care of the things we have, for we are not going to find it easy to get others when they are gone. So, the moral of these remarks is simply this: "Take care of your instruments and they will give you long and useful service. Neglect them and you may expect trouble—and still more trouble when you try to replace them."

But the fact of the matter is that your instruments deserve the best possible care anyway, all the time, in war or peace. In the average mill the instruments represent a very sizable investment, one that is worthy of attention. But infinitely greater is the value of the work those instruments do. The control instrument at a single process point may produce savings equal to its own cost price, every week in the year. Surely it would be inexcusable neglect, if that instrument failed to receive its proper care.

The words "proper care" are not used here to mean anything that is difficult or extraordinary, either. The proper care of an industrial instrument is just the reasonable attention that any high-grade operating mechanism should receive, at the hands of a properly qualified person. Industrial instruments are sturdy; they are built for work under mill conditions; they don't ask any special favors. But it is true of them as of any other mechanical equipment, that the length of their valuable service will be seriously shortened by abuse or neglect.

Instrument Maintenance

A responsible and competent man should have charge of instrument maintenance in the mill. He should know his job and appreciate its importance. Of course, he should be given the facilities to do his job properly. He needs a good, clean workroom of his own. He needs a modest amount of equipment. And he also needs the help which the instrument manufacturers gladly offer him.

Every instrument in the mill was put there to do a certain job. Many of them were designed for their specific service. Each instrument, when it left the factory, was accompanied by an instruction book, telling the maintenance man just how to give that instrument its regular and proper care. If the book has been mislaid, he can get a duplicate of it by writing the maker of the instrument and giving its serial number. That instruction book is important. Generally speaking, it gives all the information that an intelligent mechanic needs to have on its particular subject; but if he has any problems, or if unusual circumstances should arise, the manufacturer's sales engineer will be glad to call and give him the personal help he needs. This point deserves special emphasis, as many instrument users can testify from their own experience: the best place to get help, when outside help is needed, is from the manufacturer of the instrument. For repairs, replacement parts, supplies or service of any kind, call on the company that built the instrument.

There are three fundamental rules for instrument care:

1. Understand your instruments, by studying the instruction books.
2. Check all instruments at appropriate regular intervals.
3. Know what the possible sources of trouble may be at each installation and forestall such troubles by watching for them.

The items which follow do not attempt a complete job of instruction. They merely touch some of the high spots of ordinary, reasonable, everyday care, of instruments of almost any type.

General Maintenance

DO	DON'T
1. Put all instruments in charge of one man.	1. Don't permit operators generally to do their own adjusting or "fixing."
2. Have the instrument man write to the instrument companies for complete sets of operating instructions for each instrument in the plant. The instrument serial number should be identified in all correspondence.	2. Don't attempt instrument repair work without a thorough understanding of how to make the necessary repair.

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Prepared by the Maintenance and Control Instrument Committee.

[1] Manager, Pulp and Paper Division, The Foxboro Company, Foxboro, Mass.

3. Keep a card file with a brief case history on each of your instruments.	3. Don't neglect recurrent troubles; locate the cause and correct it.
4. Treat instruments as carefully as a fine watch. They are made of the same or better materials; on the same kind of machinery, with the same type of skilled labor—and are expected to give longer service between overhauls.	4. Don't let dirt or corrosive materials get in or on your instruments. They ruin accuracy, shorten life and, in general, cause more premature failures than can be attributed to any other cause.
5. Check instrument installations and, if necessary, change their location to a place where they will be better protected from excessive heat, fumes, dust, spilled liquor or vibration.	5. Do not install instruments in locations that are inconvenient to the observers, otherwise they will not be used to maximum advantage.
6. At regular intervals wash pens on recording instruments in hot water. Use the right grade of ink—standard slow drying, quick drying, or low freezing. Thickened ink in pens may cause the record to fail when the pen deviates suddenly as for a process upset.	6. Don't mix various makes of ink.

Temperature Instrument Maintenance

DO	DON'T
1. Fasten any loose or dangling thermal tubing against permanent beams or posts to avoid damage. Run it inside of protection piping where necessary.	1. Don't fasten thermal tubing where it may come in contact with bare steam pipes, corrosive liquors; or be subject to continuous vibration or flexing.
2. Inspect thermal bulbs regularly for evidence of corrosion or physical damage. Especially controller bulbs should be installed without sockets where possible.	2. Don't install a thermal bulb bare if there is danger of physical damage, or if it is impossible to remove it for checking purposes without shutting down the process.
3. Take all possible precautions against overranging temperature instruments.	3. Don't install a temperature instrument where its bulb can be exposed to temperatures exceeding the scale range or overrange limit.
4. Have a place to hang glass stem thermometers up and when not in use always hang them there.	4. Don't lean glass stem thermometers against walls, boxes, posts, etc., or otherwise handle carelessly.
5. When checking temperature instrument readings, be sure to agitate the water or oil in the checking pot continuously—be sure to wait long enough for the instrument being checked, and the test thermometer to come to equilibrium—be sure your test thermometer is accurate, and well immersed—and above all have the test made only by the man in charge of instruments.	5. Don't be misled by incomplete submergence of bulb sensitive portion drifting oil bath temperatures or inadequate oil bath circulation.

Pressure Instrument Maintenance

DO	DON'T
1. Select pressure instrument ranges with care so that normal maximum pressure will register between ⅓ and ⅔ of scale.	1. Don't connect a pressure instrument where the pressure might exceed the scale range.
2. Protect pressure sensitive elements from the heat or corrosive effects of the pressure medium being measured. Use a seal wherever necessary.	2. Don't neglect to periodically inspect the condition of seals and pressure piping.
3. Where necessary protect pressure instruments from pen whip with a good snubber.	3. Don't allow pen or pointers to fluctuate wildly in response to violent pressure changes, but don't deaden excessively, otherwise the instrument cannot follow important changes. Don't use a needle valve for a snubber.

Flow Instrument Maintenance

DO	DON'T
1. Protect the flow meter chambers from accumulation of sediment and from corrosive effects of the material being measured. Use seals where necessary and clean out the chambers at regular intervals. Eliminate ALL leaks from the meter piping.	1. Don't neglect to periodically inspect the condition of the meter piping and seals.
2. Lubricate pressure tight meter bearings regularly but moderately.	2. Do not use lubricant other than that recommended by the instrument manufacturer.
3. Periodically inspect the condition of and thoroughly clean flow meter primary devices. Be sure pressure taps are made exactly as specified, and that the plate is faced the right way.	3. Don't install meter primary devices in any way other than that recommended by the instrument manufacturer, or the Fluid Meters Committee of the A.S.M.E.

Control Instrument Maintenance

DO	DON'T
1. Supply air-operated controllers with clean dry air.	1. Don't permit water, oil or dirt to be carried by the air into the instrument.
2. Handle the precision mechanism in exact accordance with the maker's instructions.	2. Don't "tinker."
3. To maintain good automatic operation check the system occasionally on hand control and eliminate or reduce to a minimum any rapid, periodic cycling caused by faulty operation of equipment elsewhere in the system as, for example, sticking steam traps, sloppy operation, etc.	3. Don't make frequent readjustments of the control instrument. If it was properly designed, applied and originally correctly adjusted it will not need readjustment until there is a major change in the process equipment or operation.

Control Valve Maintenance

DO	DON'T
1. When tightening pipe into a screwed-end valve during installation, hold the valve with a wrench at the end into which the pipe is being screwed, in order to prevent distortion of the valve seat and resulting leakage.	1. When installing a screwed-end valve, do not use too much force in making up the joint. You may distort the body and seat, thus causing a leak.
2. Valves found leaking through the seat and disk, or through the stuffing box, should be repaired or repacked as promptly as possible. The longer leaks are allowed to continue the more wear and destruction of vital parts occur.	2. When repairing valves do not lap any more than is necessary to secure a tight valve. Overlapping wears away seat material and does not result in any improvement. Machining of parts should be unnecessary if valves are examined and serviced at regular intervals. Don't disturb valve travel spring adjustments.
3. Lubricate valve stems regularly with the recommended lubricant.	3. Don't force the valve stem packing nut down tight to stop leakage.
4. Protect valves from distorting stresses applied by the weight and expansion of piping.	4. When installing valves don't depend on muscle instead of clean sharp threads, or new gaskets to make joints tight.

Two Books on Production

The Addison-Wesley Press have just published two books relating to production entitled, "Notes on Production" and "How To Get More Production."

Notes on Production: This is a 79 page (9 x 12) cloth bound volume containing reprints from *Factory Management and Maintenance Magazine* covering personnel management, safety, employee training, plant layout and buildings, maintenance organization, quality control, inventory and materials handling, waste control, production control, wage incentives, budgets, overhead control, and foremanship. Each subject is treated by a separate well qualified author. Although the items do not deal specifically with pulp and paper manufacture, they cover the fundamentals of production management in an interesting way. The twenty-three sections that make up the book were published over a period of the past seven years, and were selected for college use by the Department of Engineering Administration of the Massachusetts Institute of Technology wherein they have been used for instruction purposes. Price $3.50.

How to Get More Production — 50 Case Studies

This is a 114 page paper bound volume made up of articles which also appeared in *F.M.&M. Magazine.* Each article is written by a different author and includes such subjects as: subcontracting, plant conversion, multiple shift operation, twenty-four hour maintenance, planning and scheduling, work simplification, training operators and foremen, rating jobs and men, safeguarding health, insuring plant protection, and employee identification. The price is $1.00 per copy.

Copies of each publication may be obtained from the Addison-Wesley Press, Inc., Kendall Square Building, Cambridge, Massachusetts.

Maintenance of Pumps*

By John H. Hall[1]

Installation

Location

Install the pump in a well-lighted, accessible place as close to the source of water supply as is practical, and preferably below water level. Provide ample head room for crane, hoist or tackle. Poor lighting is often the cause of poor maintenance.

Foundation

A substantial foundation, preferably of concrete, should be prepared, with the top not less than three-quarters inch below the level at which the pump is to be installed. The space between the bottom of the baseplate and top of foundation will allow for final leveling and grouting.

The foundation bolts should be located according to the dimensions given on certified print of the pumping unit. To allow for slight inequalities in the location of the cored holes in the baseplate, the bolts should be placed in a pipe sleeve at least three diameters larger than the bolt. The bolts should be threaded for a distance of at least 6 inches so that they will extend above the top of the foundation as required by the dimensions on the certified outline print. Before placing the unit on the foundation, clean off the top and wet thoroughly so that a good bond will be made between the grouting and foundation. Stuff waste around the foundation bolts to prevent the grout from flowing into same before bolting the foundation and aligning the unit.

Alignment

The pumping unit must be set level in every direction and must be lined up properly.

Piping—Suction and Discharge

All piping should be supported independently of the pump. Pipes should line up naturally. Do not force them into place with flange bolts as this may cause misalignment of the pump unit and also put a strain on the pump casing or cylinders.

All suction and discharge piping should be made as short and direct as possible in order to reduce the friction head. Where bends are necessary use long radius elbows or, if possible, pipe bends.

If the pump is to be used to handle hot liquids, make proper provision for expansion of the suction and discharge lines so that it will not force the pump out of alignment.

For pumping liquids other than water the amount of suction lift depends on the specific gravity of the liquid. Thick liquids should always flow to the pump.

Auxiliary Piping

Auxiliary piping, such as stuffing box seals, cooling water and drain connections, should be installed as called for on certified prints. Water sealing of the stuffing boxes is provided for on practically all centrifugal pumps. On centrifugal pumps handling extremely hot water, such as boiler feeders, and on pumps handling thick liquids or liquids containing solids, it is recommended that the stuffing boxes be sealed with clear, cold water from an independent source.

Centrifugal Pumps (Water)

Priming

Before any centrifugal pump is started the casing and the suction piping must be full of the liquid being pumped. The common methods of priming are as follows: (a) positive head on suction, (b) ejector, (c) vacuum pump, and (d) foot valve.

(a) Pumps which have been installed so that the center line is below the level of the liquid pumped will prime themselves automatically when the air cock on the top of the casing is opened.

(b) When operating under a suction lift, the pump may be primed by means of an air, steam or water ejector. When using these devices for priming, the gate valve in the discharge pipe should be closed and the ejector opened. As soon as the outlet from the ejector discharges the liquid continuously the pump may be started. When the pump is in operation a steady stream should be discharged indicating that the pump is properly primed. If this stream stops, the pump is not primed and the process of priming should be repeated.

(c) *Vacuum pump.* Where the pump operates with a suction lift it may be primed by exhausting the air from the pump casing and suction pipe by means of a vacuum pump. Where a dry vacuum pump is used a vacuum breaker should be installed so as to protect the vacuum pump from liquid being pulled over.

(d) *Foot valve.* This method of priming is very frequently used, and where there is liquid in the discharge line the pump and suction pipe can be primed by means of a bypass piped from the discharge pipe beyond the check valve to the pump suction pipe. Where a foot valve is used to prime a pump giving automatic start and stop, a ⅛ inch bypass line should be installed around the check valve to the suction strainer. Check foot valve frequently to see that it is clean and does not leak.

Foot Valve and Strainer

A foot valve should not be installed in the suction pipe unless absolutely necessary. If such a valve is necessary it must be installed at the end of the suction pipe. A foot valve should have an area of at least 50% greater than the suction pipe area.

To keep the pump from becoming clogged with foreign matter, a strainer should be installed. This should have a net area of at least four to five times the area of the suction pipe.

Discharge Piping

If the discharge line is short and direct, it is sometimes permissible to use piping of the same size as the opening on the pump, but it should not, under any circumstances, be smaller. Install a gate valve and check valve in the discharge line as close as possible to the pump, with the check valve placed between the gate valve and the pump.

Suction Piping

High spots or air pockets in the suction line must

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* Prepared for Maintenance and Conservation Forum, Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Warren Steam Pump Co., Inc., Warren, Mass.

be avoided. The suction line must be airtight and should be tested under pressure. The suction pipe should be at least one size larger than the pump suction nozzle or opening. Where a suction lift exists, this should not exceed 20 feet of water (17.5 inches mercury). A gate valve should be placed in the suction line as near the pump as possible. The end of the suction pipe must be submerged at least three feet when the water is at its lowest level. For large pipes a distance equal to four times the diameter of the pipe is sufficient. *The pump must never be throttled on the suction side.*

Operation of Pump

Never operate a pump dry. The casing and suction pipe must be completely filled with water. After this is done, close the discharge valve and start. When up to speed open the discharge valve gradually to obtain the desired capacity. While the pump is running, a small amount of water should drip from the stuffing boxes. Do not adjust the glands too tightly as this will cause rapid wear on the shaft sleeves.

When any centrifugal pump is operated at a very low capacity or against a closed discharge, the horsepower required to rotate the pump is used to churn up the liquid. This will cause a rise in the temperature of the liquid being pumped and if continued for any length of time will raise it high enough to change the liquid to a vapor. When this occurs the rotating parts may seize. To avoid this, we recommend that a bypass line be installed from the pump discharge back to the pump suction pipe. This connection should be made to the discharge line between the pump discharge flange and the first valve. The size of the bypass line should be ¼ inch and should be connected with a valve so that this can be controlled when the pump is in operation.

Stuffing Boxes and Packing

Packing and stuffing boxes of the pump, particularly those pumps operating on suction lift, should be given careful attention. Packing should not be allowed to dry out as this causes excessive wear on the shaft sleeves. As a precaution against drying out, a small amount of water should drip from the stuffing boxes at all times. When repacking the stuffing boxes, first see that all old packing is removed. Check to see that the water seal ring is not plugged with scale or old packing.

When replacing, see that the ring is centered over the water inlet connection. On most pumps a ring or two of packing is installed ahead of the water seal. It is a good idea to use a light grease to help the new packing to work into place. If ring packing is cut to length, see that the ends do not overlap. Stagger packing joints and be sure to set each ring of packing as it is applied. When the necessary amount of packing has been installed, tighten up with a wrench so as to be sure that the packing is properly seated, then slacken off and tighten up finger tight.

Pumps handling dirty, gritty or corrosive liquids under suction lift should be externally sealed with clean, noncorrosive liquid to prevent rapid corrosion and scoring of the shaft sleeves.

Lubrication

Bearing life will depend to a large extent upon the care and amount of lubrication that the bearings are given. It is important that the proper grade of lubricant be used and that the lubricant be kept free from dirt, moisture or other foreign materials. In handling bearing parts, take particular care to see that the bearing surfaces are not scratched and that no dirt or foreign material is left in the bearing before it is put into service. A good precaution against the entrance of dirt in the bearing parts is to wrap them up in clean paper.

Inspect the oil in the bearings and lubricating system periodically. It should be changed whenever there is any sign of contamination, stickiness or gumming. It is considered good practice to change oil every 700 hours of continuous operation.

For pumps having oil lubrication, a good motor oil having a Saybolt viscosity of about 150 to 200 at 100 deg. F. is recommended. An oil having an SAE 10 rating will work out very well.

On ring oiled bearings, care should be taken to see that the rings rotate freely when the shaft is rotating. If water cooled bearings are provided, inlet cooling water on the bearings must be connected to a cold water supply to insure a continuous circulation of water. Do not place any valve in the outlet side of the cooling water pipe as this should discharge into an open drain at some visible point.

Ball Bearings

If ball bearings are furnished see that they have sufficient oil or grease, depending on whether they are oil or grease lubricated. If oil, fill to oil level gage; if grease, put one or two shots from a grease gun into the bearing every thirty days. When new grease is added, unscrew the plug opposite the grease fitting to allow the old grease to escape. Housings must not be packed tight with grease as this will cause bearings to overheat.

It is recommended that the grease be a mixed sodium soap grease carrying not less than 82% of high grade filtered mineral oil of Saybolt viscosity of not less than 150 at 100 deg. F. and should not have a melting point less than 300 deg. F.

Case Flange Gasket

Whenever the upper half of the case is removed for inspection or repairs, it is good practice to install a new gasket. The gasket material should be the same thickness as the one removed. One side of the gasket should be attached to the lower half of the case by shellac and the other side given a coat of oil and graphite.

Coupling

When found necessary to remove pump half coupling, heat the hub of the coupling before attempting to remove. It should be heated before reassembling on the pump shaft. To insure correct action of the coupling, keep the coupling bolts and brass bushings clean and free from dirt. Coupling faces should be kept in alignment to assure maximum life from the coupling bolt bushings. To assure maximum life of coupling bushings the coupling should be aligned to within 0.003 inch. Where a metal coupling is used and provided the speed does not exceed 1750 r.p.m., a slightly greater misalignment is permissible.

All metal couplings should be adequately lubricated and it is also recommended that on the pin and bushing type couplings the brass ferrules be kept lubricated. Care, however, should be taken to see that oil does not come in contact with the rubber bushings.

Stopping the Pump

On pumps working against high discharge pressures it is advisable to close the discharge valve be-

fore stopping the prime mover. This will protect the pump case and check valve from damage due to water hammer.

Centrifugal Pumps (Stock)

Location

The pump should be installed so that there will be an ample supply of stock and that it will flow to the pump suction nozzle under a positive suction head.

Care should be taken to see that the chest filling line does not discharge over the pump suction. This is quite frequently one of the causes of air getting into the suction line.

Suction Piping

The suction line should be short and direct and should be no smaller than the pump suction nozzle. Wherever possible the pump should be connected direct to the supply chest with only a shear type gate valve between the pump and the chest.

Discharge Piping

The discharge line should be as short and direct as possible. Elbows used should be long radius type. Pipe bends are recommended. The discharge line should be sufficiently large so that the pipe friction will not be out of proportion as compared to the static head. High friction heads mean larger pumps and wasted power, and quite frequently larger pipe even with higher initial cost will be found more economical in the long run. If in doubt as to the size to use, consult the pump manufacturer.

Make sure that all gate valves are stock and water tight. Leaking valves will allow the water to drain from the stock and plug the lines.

Instructions for lubrication, stuffing boxes, packing, case flange gasket, and coupling will be found under instructions for water service centrifugal pumps.

Reciprocating Pumps

Location

For reciprocating pumps ample space should be planned for the removal of pistons, piston rods or plungers when overhauling or repacking. Failure to provide this will quite frequently necessitate the removal of the pump from its foundation to do this work.

When pumps with removable pump cylinder liners are used, care should be taken to see that nothing obstructs the space necessary for the removal of the old liner and the installation of the new one.

Precaution Against Freezing

If the pump is to be shut down and exposed to freezing temperature, drain all liquid from the pump proper and from the pipes that are exposed. If there is a foot valve or check valve in the line, be sure to open it so that it may drain. The outside pump heads must be removed and the piston followers loosened, thus draining the water from the piston. This will protect the pump piston from bursting through freezing of the entrapped liquid.

Suction Piping

Never use smaller pipe size than the size of the pump suction connection. Long suction lines should be kept to a larger size than the pump suction connection. This will tend toward keeping a low velocity in the suction line, insuring safety against vaporization and loss of suction head. Excessive use of elbows, tees, etc., is one of the principle causes of objectionable noise or water hammer in the suction line.

In the installation or replacement of suction pipe care should be exercised at the flange joints to see that none of the gaskets protrude into the pipe bore. The suction of all pipes should be clean and free from all foreign material, chips, scale, etc. If the liquid to be pumped is dirty or contains some solids, a removable strainer should be installed in the line. This strainer should have an area of three to four times that of the suction pipe. It should be cleaned periodically.

Where the total suction lift is 15 feet or more, a foot valve should be installed at the lower end of the suction pipe. This foot valve should have an idea 50% greater than the area of the suction pipe. The suction pipe and its connections must be perfectly airtight as a small air leak will prevent the proper operation of the pump and will impair its efficiency.

Suction Air Chamber

A suction air chamber should be installed in the line close to the pump if the suction line is long or the velocity in the line high. A suction air chamber is also recommended when the pump operates with a high positive suction head. If the pump cylinder has two suction openings, the suction air chamber should be placed on the blank side.

Suction Head Required For Hot Water

When a pump is handling hot water the liquid must flow to the pump under a positive head. The amount of positive head varies with the temperature. The following suction heads are recommended for various temperatures:

Temperature, deg. F.	Feet
160	1
170	3
180	5
190	7
200	10
210	11.5
212	12

The above tabulation is general and where these conditions cannot be obtained the disadvantages of the low suction head can be overcome by various modifications in the construction of the pump, such as lighter valves, lighter springs, slower operation of the pump or short suction line.

Starting the Pump

Before attempting to start the pump, first see that the steam cylinder drains, exhaust, suction and discharge valves are all open. Give the handle of the mechanical lubricator a few turns to force oil into the steam cylinders. Next, slowly open the throttle valve. Do not close steam cylinder drain valves until all condensate has been removed and only steam passes. The control of the pump should then be transferred to the governor, or if the pump is not equipped with a governor the throttle valve should be set for the desired pump operating speed.

Lubrication

A sight feed mechanical lubricator should be connected in the steam line, preferably about three feet from the steam chest, to allow the oil to emulsify before entering the steam chest and cylinders. All reciprocating pumps should be provided with some form of steam cylinder lubricant. A good grade of steam cylinder oil, free from tallow or paraffin, should be used. The following are some sizes of steam ends and the recommended amounts of oil for each:

Size, inches	Drops per minute
4½ x 4	2
5¼ x 5	2
6 x 6	3
7½ x 6	4
7½ x 10	6
8 x 12	7
10 x 12	8
12 x12	8

The valve gear should be lubricated once every 12 hours with a medium grade oil. The crossheads and levers on duplex pumps at the ball and socket joint should be flushed with heavy oil twice in every 12 hours of continuous service. Piston rods and valve rods should be flushed three or four times daily with a heavy cylinder oil at the point where they pass back and forth through the packing.

Discharge Piping

Where the discharge pressure is high it is always good practice to place a relief valve in the discharge line between the discharge of the pump and the check valve. This relief valve should be set 15 to 25 pounds higher than the desired pump pressure.

Discharge Air Chamber

When any disturbance caused by pulsation in the discharge line is detrimental to the operation of the pump or any objectional noise, such as water hammer or other hydraulic shocks, is created an air chamber should be installed in the line, preferably as close to the discharge opening of the pump cylinder as possible and, under no circumstances, on a dead end. A check valve should be placed in the discharge line beyond the air chamber. This valve will relieve the pump valves from static discharge line pressure when the pump is shut down.

On reciprocating pumps, the discharge air chamber should be ten times the pump cylinder displacement. To determine the size of an air chamber, make the diameter one and one-half times that of the pump piston. The air chamber should at all times contain a cushion of air which should be at least one-third of the air chamber capacity.

Stuffing Boxes and Packing

The stuffing boxes should be kept filled with a packing of good quality. In tightening the glands care should be taken not to set them too tight, thus causing unnecessary friction on the rods. Also make sure that at all times the glands do not ride on the piston rods. This quite frequently is the cause of the scoring of piston rods. The packing should not be allowed to remain in the stuffing boxes long enough to become hard and score the rods.

When the pump is being shut down for a considerable length of time the piston rod and valve rod stuffing box packing should be entirely removed to prevent the chemicals in the packing from pitting the rods during the period of idleness.

Pump Valves

Pump valves should be inspected occasionally to see that they are in good condition. Pump valves of metal should be reground if found to be worn. It is recommended that valve springs be changed at least once a year.

Pump Piston Packing

The water piston packing should be inspected occasionally to see that it, too, is in good condition and should be entirely replaced when worn. Fibrous packed water pistons sometimes cause trouble through the swelling of the packing causing the pump to operate stiffly and make short strokes. This is especially true when the pump handles hot liquid. To eliminate this trouble, it is recommended that the packing be cut into rings approximately ¼ inch longer than the circumference of the inside diameter of the cylinder lining and then allowed to soak in hot water for about thirty minutes. The packing can then be fitted to the piston, care being taken to see that the end of the rings do not butt. The gap between the end of the packing rings should be approximately 1/16 inch. Enough packing should be put into the piston so that it will extend beyond the piston about 1/32 inch. In doing this it may be found necessary to strip off one or more layers from one of the packing rings. At all times during the stripping of the packing, the packing should be kept wet with hot water.

Make certain that when the follower is tightened up against the packing that the piston is forced towards the top of the lining. This is to prevent the metal of the piston from rubbing or scraping on the bottom of the pump cylinder lining.

Stopping the Pump

At all times in shutting down the pump, open drain valves on steam end to allow for drainage of condensate. In shutting a pump down for a week-end or longer period, the plugs in the top of the steam chest should be removed and one-half cup of steam cylinder oil poured in. The plugs should be replaced and the pump run fast, say five or six strokes, and then shut down.

Explanation of Cushion Valves Found On Steam Cylinder

In some of the larger sizes of steam pumps cushion valves will be found. The function of this valve is to prevent the steam pistons from striking the heads when the pump is running slow or working hard. The cushion valve should be opened all that it can without allowing the pistons to strike the heads. When running quick and light the valve must be closed more.

Adjustment of Steam Valve

Although it is a natural tendency to inspect the steam valve of a pump if uneven operation occurs when a pump is first installed, it is advisable to first check the entire installation and not touch the steam valves at all since they are accurately adjusted in the shop. Adjustment instructions for steam valve should be obtained from the pump manufacturer.

Removal and Installation of Cylinder Liners

Before attempting to do this work it is necessary to have available the proper tools. These should include a chisel 18 inches long with a ⅜ inch gouge shaped point to cut the old liner, a chisel to force the liner up after it has been cut and a jack or draw bar to force the liner in.

The liner should be cut through the entire length, first starting in about 2 inches from the end. After this has been done the remaining 2 inches is cut through. Next the ends are forced up, using a chisel, and after the lining has been thoroughly loosened it is removed.

Care should be taken to see that the cylinder casting is thoroughly cleaned before the new lining is installed.

The new lining should be draw filed around evenly so that it can be tapped in about half way before be-

coming tight. The inside of the cylinder should be painted with a mixture of white lead and oil. When inserting the liner in the cylinder make sure it is square with the bore. Tap in lightly until it becomes tight and then jack into place.

Rotary Vacuum Pumps

Location, foundation, alignment and piping for this type of pump will be found under general instructions.

Suction Piping

Connect the suction pipe full size to the work. If liquid is to be handled with the air exhausted the pipe should grade towards the pump. Where it is impossible to so grade the piping or where the work is below the pump level, install a lift fitting. This fitting will provide a constant flow and keep the suction pipe dry. Where the proportion of liquid is relatively great, too much to be handled through the pump economically, a barometric separation should be made a part of the suction piping. No unnecessary fittings or turns should be used in the suction piping. All gaskets and joints must be tight to prevent air leakage. A tee with gravity drop leg installed in the suction line close to the pump is an effective means of trapping out pieces of metal which otherwise would enter the pump and cause serious damage.

Discharge Piping

Rotary vacuum pumps are designed to handle air and should not be used to pump liquids against a discharge head. For best operation the discharge should be free. Discharge piping must be run full size and should be drained away from the pump. If the piping cannot be so arranged, separation of water can be accomplished by installing a tee full size close to the pump. The top branch of the tee should be run full size to the point where the air is discharged and the lower branch of the tee bushed down two pipe sizes to carry the water to waste or Saveall. If the discharge sound is objectionable, a Burgess or any other approved type of muffler should be installed at the vacuum pump discharge, protected from water by the separating tee mentioned above. The drain from the separator tee should be submerged in water to prevent escape of air.

Water Seal Piping

Water seal or sealing liquid is run into both cones of the pump through two water inlet valves consisting of a lever handle shut off valve and a set valve. These valves are supplied with the pump assembly. A self-cleaning type of line strainer should be installed to prevent fouling of these valves.

Drain Piping

At the bottom of the pump casing drain openings are supplied which may be valved off and piped to waste where it is desirable to drain the pump casing. It is recommended that this be done frequently.

Packing

There is a stuffing box in each cone of the pump. This box should be packed with asbestos packing or packing of a similar nature. The stuffing box should never be pulled up too tight since a tight stuffing box is quite likely to run hot and may seize or use unnecessary power.

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Bearings

The pump shaft is supported on both ends by either ball or roller bearings mounted in bearing brackets on each side of the casing. These bearings are mounted in a dustproof housing and require no attention whatsoever except lubrication. The oil cups should be kept full with a good grade mineral oil, free from acid or alkali. To prevent oil leakage along the shaft, fill the oil cups when the pump is not operating. In wet or dirty locations the bearings should be protected from water or grit by splashproof or dripproof covers fastened to the bearing bracket arm.

Draining

When the pump is to be shut down for a considerable length of time the water should be entirely drained by removing the drain plugs. After the pump has been thoroughly drained, replace the drain plugs and pour in a quantity of light oil through the openings in each head. There are two or more openings equipped with pipe plugs on the top of each head. After the pump is filled, turn over a few revolutions to thoroughly lubricate the interior and consequently prevent sticking. Pumps having grease cups should be turned down a few times after oil is poured in.

Starting

After the pump is in place and tightened up, it may be found difficult to turn the unit over. This is sometimes caused by a thin film of rust being deposited on the pump interior. If it is found difficult to turn the pump over, loosen the head to free the rotor, turn it over once or twice and bolt the head up tight again. Once the pump has been run there is no danger of it binding. Adjust the amount of sealing liquid by means of the set valve which is furnished with the pump. The adjustment must be regulated to give the best results from each individual application. After adjusting the set valves use the lever handle shut-off valve to open and close the water supply when the pump is started and stopped. Before starting, make sure that the bearings are properly lubricated and that the stuffing box glands are not set up too tight.

Locating Trouble

Mechanically the pump is so simple that there is seldom any reason for inspecting the interior. If trouble is experienced in obtaining full volume to maintain a constant vacuum the following points should be carefully checked before dismantling the pump:

1. The proper amount of water
2. Rotation
3. Correct speed
4. Improper assembly
5. Free discharge
6. Restriction in suction line

Beyond lubricating the bearings properly, little attention need be given to the pump. Where there is a scale deposit caused by impurities in the sealing liquid it may be necessary to carefully flush the pump with a solvent for scale. If the pump is to be used for belt drive, particular attention should be paid to having the belt as loose as possible without slipping. The belt should not be tightened up so as to put unnecessary strain on the pump bearings. The tight or driving side of the belt should be on the under side of the pulley.

Acknowledgment

Information in connection with rotary vacuum pumps supplied through courtesy of Nash Engineering Company, South Norwalk, Conn.

Vortraps in Maintenance and Conservation*

By Douglas Robbins[1]

Our first consideration in this time of emergency is to determine ways of conserving the supplies of critical materials and produce paper required. Up till the time the United States entered the war, the Vortrap was available to the mills for the purpose of separating dirt from pulp—and papermaking stock. Now, this device becomes important as a means of conserving metals.

The Vortrap is a cylindrical apparatus, suspended vertically, through which the stock is forced. The stock follows a helical line of travel and the centrifugal force causes the dirt to be thrown out to the other wall of the cylinder and it settles to the bottom and enters a trap. The stock is carried by the water upward, after approaching the bottom diaphragm, in a "tight" spiral inside the incoming stock *(1)*.

After the country entered the war, the importance of this apparatus became more apparent as a means of prolonging the life of equipment, such as Fourdrinier wires. Letters to mills, using this device, brought forth replies indicating from 10 to 35% increase in the life of the wires after the installations.

One mill indicated that there was an undetermined saving on calender rolls, 10% saving of wires, and that pulp was sold for nitrating which had passed through the apparatus. Another mill states that tailing screens were discontinued after these devices were installed. Several other mills state that the use of screens were discontinued, the life of felts and wires prolonged, and quality was improved.

Saving Metals

Today, we are discussing "practical" facts—and with this in mind, it should be realized that we should consider not only the actual amount of bronze saved, by even a 35% longer life of wire but also the saving in labor and production, which is a very important item in the war effort. In other words, if this apparatus permits a bronze Fourdrinier wire to run 35% longer than ordinarily, it means the saving of manufacture of new wires. To visualize this, we must appreciate what the replacement of a wire involves, from the foundry to the intricate weaving of these fine mesh wires. Besides the bronze melted at the foundry, we must take into consideration the hours upon hours of skilled labor required to produce these wires, much of which can be saved for the war effort by prolonged life. All who use Fourdrinier wires, have sewn them have seamed them, have babied them and have tried to get one more day, or even one more hour, out of a wire. This was done at a time when it was not vital to save copper, brass, bronze, nickel, chromium, etc. And today, this saving is extremely important so that both this material and skilled manpower can be released for vital war work.

In addition to the saving of Fourdrinier wires, the elimination of abrasive dirt and grit saves calender rolls. It is easy to realize the waste of metal in grinding calender rolls to a polish whenever damage occurs. Let us assume two typical size rolls of chilled iron one is 16 inches in diameter, and the other 24 inches. each 130 inches long. Say these rolls are ground 5/1000 of an inch (which of course is not heavy surface grinding). This would mean the loss of metal, on the 16-inch roll, of 8.2 pounds and on the 24-inch roll, a loss of 25 pounds. This metal goes into grindings which are thrown away, and while this is a small item in one instance—multiplied by the many rolls which are ground for paper mill work—it runs very quickly into substantial tonnage. By saving the calender rolls from frequent grindings, we not only save the metal, but again save the skilled manpower and machine time which, in the machine shop industry, assumes a disproportionate importance.

The elimination of abrasive dirt and grit also means saving in felts. It is obvious that gritty substances embedded in the felt, traveling over stretchers, and rolls and suction covers, has a tendency to cut these fibers, weakening the felt in some part, which eventually will become a tear. Many people will agree that the washing of a felt is not always for the sake of giving it greater absorbency; but also for the removal of dirt and grit which accumulates in its meshes. So if we help to save the life of our paper mill felts, we release the looms for the making of blankets, raw wool, and other necessities for the war effort.

The Vortrap also effects a saving on the valves in our pipelines. Isn't it obvious that the removal of gritty substance from the material passing through these valves would tend to lengthen the life of the valve?

Conservation of screen plates is another important item. Here, too, the apparatus is proving its value to the industry. When screens are used in conjunction with this apparatus, it is not necessary to pound out and recut the screen plates, as was formerly required. The life of the screen plates, therefore, is prolonged indefinitely.

We have now told you of specific instances where Vortraps serve the war effort. It is important that they be allowed to continue to serve pulp and paper mills. No doubt some of you have been unable to install them in your mills because of the inability to obtain priorities.

The War Production board has an important job to perform. We have a high regard for their conscientious effort and realize that they are endeavoring to put first things first. However, if they fully comprehend the savings this apparatus can effect, in comparison with the small amount of metal required in its construction, and also its value to the pulp and paper industry today, when dirt conditions are aggrevated because of reduction in use of chlorine and the reclamation of waste paper, they will appreciate its value with relation to the war effort.

Very likely, many operators of Vortraps are present at this meeting. If you have had any experiences which we have not covered in this paper, we would be glad to hear from you as it is our wish to continue to add to our records many conservation of materials, which the mills find to be true, through actual performance.

1. Freeman, Horace, "The Vortrap", *Technical Association Papers* 21:225-228 (1938).

* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] Douglas Robbins Co., Middletown, Ohio.

Priorities and the Paper Mill Superintendents*

By E. Glenn Amos[1]

We have thought, over the past year, that probably priorities were something for the purchasing agent and suppliers of material to worry about, and as a result have considered them quite generally when the subject of priorities has arisen. We have published our bulletins with the purchasing agents in mind, we have a Committee of Purchasing Agents, whose offices happen to be in New York, who meet once a week to discuss priorities and what effect they will have on procurement.

However, as we get more and more into the subject and view from our grandstand seat, the parade that goes by in the shape of orders, price ceilings, amendments and rules, we cannot help but feel that the "fall guy" is probably not the purchasing agent but in reality the mill superintendent. He is the one who has to devise ways and means to meet changing conditions, work out substitutes, or get along without, as the case may be and still meet production schedules.

We have watched for over a year the parade of priorities. We have seen orders in the L Series, M Orders, P Orders, Price Schedules, and E Orders. We have tried to assist in the clarification of those that affect the paper industry so that the going will be a little easier on those of you who after all must live with them. I do not believe anyone has any particular fault to find with them, with the possible exception that they are written in terms that no one but a lawyer can understand. Since nearly all of them will aid in winning the war, the paper industry has taken these orders for granted and by and large has made an honest effort to abide by them.

We are all irked at various times by priority orders that come over our desk because we do not always see the necessity for them and also because they cause us personal inconvenience. Rationing of rubber tires is a case in point. Yet when we understand that 90% of the rubber is normally produced in countries now under control of the Axis powers, we feel better because we at least understand why we must conserve rubber in all forms because it will be some time before prewar rubber is available.

Conservation Bulletins

The priority situation presents a distinct challenge to everyone. Everyone must devise ways and means to get along with less or do without critical materials and it is surprising what has been done already by plain horse sense and American ingenuity. The paper industry has developed many ways of conserving critical materials and a conservation committee is now publishing a series of some fifty articles on specific methods of conservation of materials. These articles cover subjects on nearly every scarce material now used by the industry. There are, no doubt, a number of orders yet to come and it presents a definite challenge to everyone to assist in working out concrete methods of conservation. It takes time and effort and personal sacrifice, to be sure, but those in the armed forces must be supplied and we must supply them even though it hurts—and it probably will hurt plenty before we are through. In an all out war such as this, we can expect nothing else.

I presume you are interested in where we are going so far as priorities and allocations are concerned. I wish I could tell you. I don't believe even official Washington would care to predict since so many factors and "ifs" are involved. "If" the demand for copper grows and the supply does not keep pace, who are we to say that fourdrinier wire is more important than wire going into a plane in whose cockpit is seated your son or mine and whose very life depends on noncorrosive wiring? We are certainly, in a case like that going to give up our screens even though without copper screens, I am informed, we cannot make paper. When it becomes necessary to curtail the manufacture of paper because of such a shortage, it will no doubt be the nonessential grades that will go first. We understand that considerable thought is being given to the problem of determining the essentiality of the various grades of paper by the War Production Board aided by industry representatives. This to be used when and if it becomes necessary.

"If" it is true that steel production for 1942 will be 88 million tons and our war program takes 67 million, leaving but 21 million for an estimated civilian program which needs 38 million, it is not going to be the easiest job in the world to find substitutes for 17 million tons of steel.

"If" the war is carried on into 1943, and the chances are good that it will, the critical material situation will certainly not improve. Now as never before, the man with the oil can and grease bucket is one of the key men in any plant where wheels must be kept turning.

Many more "ifs" might be added but I trust you get the point. There is probably not much question that some materials will be more difficult to obtain although new and better means are in the offing which will give a better picture of supply and demand. Unfortunately, mistakes have been made in estimating needs and production capacity in some industries—the paper industry being a case in point.

Action of WPB

We understand that applications for priorities processed by the Pulp and Paper Branch of WPB have almost doubled since January. This is probably due to the fact that the A-10 under P-100 is becoming inadequate due to shortages of materials, or the desire to build up inventories, or a desire to expand. Since the war production program is now at a critical stage, it is becoming more necessary than ever to direct critical materials to this type of production and less to civilian industry.

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* Presented at the Annual Meeting of the American Pulp and Paper Mill Superintendent's Association, Grand Rapids, Mich., June 16-18, 1942.

[1] American Paper and Pulp Association, 122 East 42d St., New York, N. Y.

According to their policy, just announced, the Pulp and Paper Branch will deny requests for priorities for materials that are to be used for *expansion* of facilities unless such expansion is requested by the War Production Board. It will likewise deny requests for *improvements* even though this makes for a loss in production.

So far as maintenance and repairs are concerned, assistance will be available only for the *minimum* requirements. Substitutes must be used and will not be deemed impracticable even though they are uneconomical or inefficient.

In case of emergency, where a breakdown will cause partial or complete shutdown, priorities will be available if a given mill will report by telegram the essential details. This procedure should be followed only in case of genuine emergency of a serious character. Even spares such as motors, pumps and other pieces of critical material will in general be denied. While this may result in some loss of production, it is deemed necessary when the present situation is considered.

Application for ratings will only be approved in any case when it is apparent that the applicant has explored the possibility of substitute materials and has selected the least critical material for the purpose at hand. The basic economic consideration will be one of material rather than money. Policies will be liberal under Order L-83 in granting release of second-hand material.

It has been announced many times that it will be necessary for all industries to come under some form of a Production Requirements Plan (PRP) in order to get supplies after July 1. The theory back of this is sound since it is necessary to know the quantity of materials that are needed as well as what materials are available. When these factors are known, it is a matter of simple arithmetic to ascertain if there is enough to go around or how much is short. The Pulp Allocation Order M-93 is a good sample of how a PRP would work except that it is on a monthly basis instead of the three months period in the PRP.

PRODUCTION REQUIREMENTS PLAN

A new Production Requirements Plan is being brought out by the W.P.B. as Priorities Regulation 11. Under this plan will come most all industries that use $5,000 or more of metals for quarter. We are informed however that this plan is not designed for, nor is the pulp and paper industry supposed to use it. We are given to understand that another plan is being devised for the pulp and paper mills and similar industries and will be out soon.

Since this plan is not out and neither is it known what will become of P-100, we cannot discuss them intelligently.

ALLOCATION CLASSIFICATION

Priorities Regulation 10 or the so-called Allocation Classification System recently issued will do two things—or at least there are two purposes in mind. One is to obtain standardization and reduce the rules of different forms for allocation purposes that the industry must now submit to the War Production Board; and two, to furnish information needed by the War Production Board in the allocation of materials.

As previously stated, in order to allocate intelligently it is necessary to know the subdivisions or end uses for which materials are going to be used. For example, it is essential to know whether steel is going into the production of tanks or into metal ash trays —because one can just as well flip his ashes on the floor. It is necessary to know what type of purchasers will eventually receive particular products or in other words the end use of materials.

Under the plan, each business or industry is assigned to a numbered class and most classes are in turn divided into subclasses indicated by a decimal number.

Each purchase order will with a few exceptions, after June 30 carry its appropriate number. The pulp, paper and paperboard industry will, we expect, use 8.90 on all its orders. By tabulating these at the end of stated intervals, any supplier can report to the WPB where its materials have gone and likewise a paper mill can tabulate its order and know into what channels its paper was started to its ultimate use in at least a general way, since retailers will use no such symbol. In the case of sales to retailers, the wholesaler or distributor will simply place the letter D.P. on such orders, which shows they went into the "Domestic Purchaser" classification. Orders for paper from the United States Navy for instance, will carry the letters U.S.N. and orders for materials going into this order would carry the symbol U.S.N. 8.90. Other symbols are proposed for U.S. Army, Lend-Lease, Foreign Purchaser, etc.

As we understand it this is something of a trial balloon and if after a thorough trial it works to the satisfaction of everyone, it will be expanded and instead of numbers or symbols indicating the broad classes that they do now, each specific industry will have its own numbers. This will then serve a very useful purpose which it cannot do in its present form.

Preliminary information of this plan was mailed to pulp and paper manufacturers last week, and as changes are made, the information will be sent out.

Labor and Raw Material Supplies

There is probably no question now as to the ability of mills to produce adequate supplies of paper, providing raw materials, such as pulp, are forthcoming. There is no question as to supply of wood for pulping purposes. There is, however, some question at the moment as to woods labor and adequate transportation to get this wood to the mills. Here again rubber plays an important part since a larger percentage of wood is annually transported from the forests by trucks. The industry's committees are now devising ways and means of meeting this situation, and new and old methods of transportation will be used. Rivers that have not been driven in years will again be opened, horses and even oxen will be utilized and new sluiceways will be constructed if materials can be obtained.

However labor must be used and therefore our manpower studied. It is not inconceivable that a priority will be placed on labor and in war industry areas the bid for manpower will become pronounced. It does behoove mill superintendents and personnel officers of the plants to study their situation and know where they are going in connection with the labor market. They must know what jobs can be combined or eliminated, they must know what jobs can be filled by women and it is surprising to some of those that are new at the game, how many jobs women can fill. We are now conducting a survey on this very thing and the results should be ready very soon. My friend Stamets tells me he has employed women as machine tenders and can and will do so again if the necessity arises.

Regimentation of workers by the government is a possibility. We have already seen some of this in Idaho where it has been deemed necessary to shift whitecollar workers to the fields in order to plant the all important beet crop.

It is not beyond the realm of possibilities to see various factories in agricultural areas closed down during the harvest periods this fall, especially if those factories are engaged in producing civilian goods or non-military products.

The appointment by Paul V. McNutt, chairman of the War Manpower Commission, of a management-labor committee to be consulted on major questions of policy comes as a fresh reminder of the acute problem of our labor supply. Since the economic collapse in 1929, Americans have been so used to the presence of a labor surplus that, despite plenty of warnings in the last year or so, they still find it difficult to adjust their minds to a labor shortage. Yet here it is today, suddenly brought upon us by a war which, while demanding an expansion of our military personnel to 7,000,000 this year and very likely to 10,000,000 next year, insists upon a commensurate productive effort. To support the latter we are now in the process of draining the labor barrel of its normal supply of workers and in the months to come must tap sources not usually in the market. The manpower commission estimates that at least 9,000,000 were employed in war industry as of April 1, but it goes on to say that 17,000,000 must be so employed by the end of 1942 and that "maximum war production during 1943 may require 20,000,000 or more."

The problem is one not only of raising this prodigious army but of so distributing it that, as among essential industries, there shall be neither feast nor famine and no waste of critical skills. Can it be solved without conscription and regimentation? In last Sunday's issue of the *Herald Tribune* Bert Andrews reported opinion in Washington as offering odds of 50 to 1 that "before another and brighter December 7 rolls around the manpower commission will have asked congress for legislation giving it power to draft workers from unessential jobs and transfer them to war jobs." Meanwhile the commission is obviously doing its level best to make a go of the volunteer system, and as evidence we have this creation of a board of consultants to gain the cooperation of management and labor in whatever measures are deemed necessary short of a draft.

Every one of us will wish success to the commission and its advisers. It would be impossible to conceive of a greater wrench to American tradition and principles than a conscription of labor, even temporary. But we might as well face the fact that it may become necessary, that, indeed, informed opinion considers it more than probable, and console ourselves with the thought that as the price of victory it is still a bargain.

The labor question has, of course, been shrouded with mystery for the past three or four years and recent decisions by the Supreme Court with respect to issues involving labor do not clarify them to any extent, although one can see some reasoning. In one of these rulings, an 8 to 1 vote—they stated that in the absence of a contract for a specific hourly wage overtime must be paid, thought weekly salaries exceed the amount required by the wage hour law. Another decision states that if a contract is given, the wage hour act does not require extra overtime payment to employees whose fixed weekly salary is large enough to meet minimum requirements of the legislation. This second decision was decided by a 5 to 4 vote indicating some reluctance to concede that even a collective bargain should be allowed to supersede the rigid requirements of an impossible statute. However, we should be thankful for this concession and not look a gift horse in the mouth. When Justice Byrnes delivered the majority opinion he said:

"When employer and employees have agreed upon an arrangement which has proven mutually satisfactory, we should not upset it and approve an inflexible and artificial interpretation of the act which finds no support in its text and which, as a practical matter, eliminates the possibility of steady income to employees with irregular hours."

About the only disturbing element in these decisions is the fact that it is necessary to carry this sort of arbitration to the highest court of the land and that this high tribunal should predicate its judgment of what constitutes a fair compromise of the wage-hour law on the consent of organized labor.

The problems are not over even if the problems of materials and labor are solved. A power problem exists because the machinery is all set up under Order L-94 which gives the government the job of designating those industries to get what power is available in case shortages occur. Fortunate indeed will be those who had the foresight some time ago to get auxiliary power units in shape. So far it has not been necessary to put this order into effect although it was imminent last spring in the southwest.

Conclusion

I know I have not painted a very bright picture but I hope I have told you enough to spur you to further effort to conserve critical materials and to study your labor situation. I have faith in the United States and its industries that they will meet any given situation, somehow, and come out on top of the heap. In this country most of the things we worry about have a way of never happening anyway.

Manhattan Rubber Wins Award

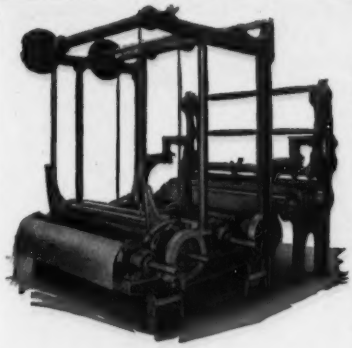
For the second consecutive year, The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., has won a national award for its advertising campaign. At the annual convention of the National Advertising Agency Network, held in St. Louis, Missouri, May 28, 29, and 30, the campaign entered in the Best Business Paper campaign competition by Manhattan was chosen the best in its class.

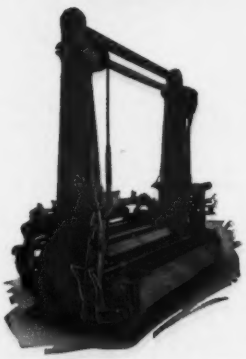
Conservation of rubber and rubber goods was the keynote of the campaign. The advertising was prepared to fulfill two purposes: (1) the care of rubber equipment so that the user would have longer wear and longer service, (2) the request to salvage and turn in all unused rubber so that it might be reclaimed and help increase the stockpile of usable rubber.

Fifty-one industrial publications, including a number of consolidated catalogs, were used during the campaign. Coordinated with the advertising in these media was a series of direct mail pieces, bulletins, calendars, instruction tags and wall cards for proper care of rubber goods, dividend enclosures and a house

"M & W" HIGH SPEED DRUM WINDERS AND SLITTERS

FOR ALL PURPOSES





Either FOUR DRUM or TWO DRUM type. Paper wound with uniform hardness regardless of grade or weight.

Perfect Shipping Rolls.

Special attachment eliminates welts.

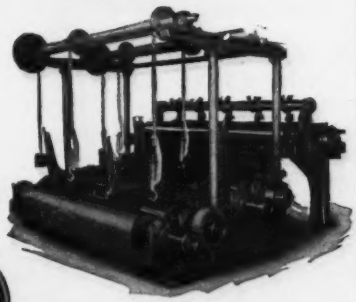
Ideal for end of Paper Machine. Also for rewinding or use in connection with Super Calender. Shear Cut Slitters give perfect edges without dust.

Positive separation of rolls.

No interweaving.

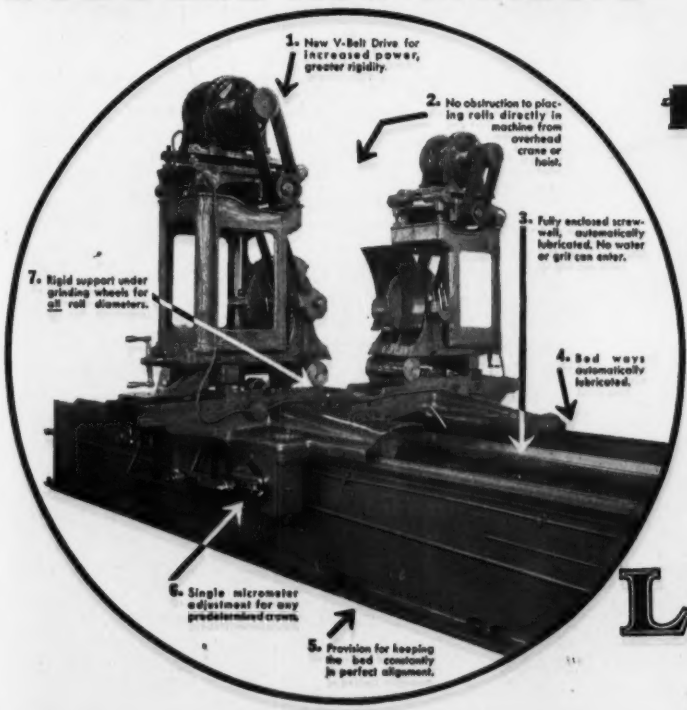
Patented
"QUICK THROW-OUT"

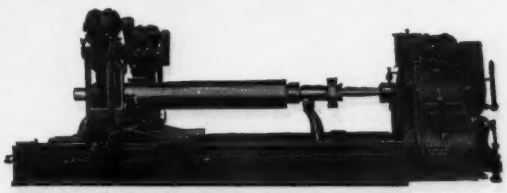
Intermediate Top Slitter Units Save Time.



The MOORE & WHITE Co.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

LOBDELL Roll Grinders


1. New V-Belt Drive for increased power, greater rigidity.
2. No obstruction to placing rolls directly in machine from overhead crane or hoist.
3. Fully enclosed screw-well, automatically lubricated. No water or grit can enter.
4. Bed ways automatically lubricated.
5. Provision for keeping the bed constantly in perfect alignment.
6. Single micrometer adjustment for any predetermined crown.
7. Rigid support under grinding wheels for all roll diameters.



Consider the 7 Features (pointed out in the illustration) and you begin to realize how carefully this machine has been designed and built, with a practical knowledge of the conditions to be met.

It offers you absolute precision, easy operation and long, continuous service — the finest, fastest roll grinding that money can buy.

Let us show you in detail the multiple savings made possible by LOBDELL's Roll Grinders.

Also makers of LOBDELL Calender Stacks, LOBDELL Puraloy Chilled Iron Calender Rolls and LOBDELL Micrometer Roll Calipers.

LOBDELL
COMPANY
107 Years in Business
WILMINGTON • DELAWARE

IMPORTS OF PAPER

NEW YORK IMPORTS

WEEK ENDING JUNE 20, 1942

CASEIN

National City Bank, ——, ——, 333 bags.
Continental Grain Co., ——, ——, 430 bags (ground lactic).
E. Lang, ——, ——, 84 bags (ground).
——, ——, ——, 237 bags (ground lactic).
Breakstone Bros., ——, ——, 750 bags.
H. S. Cramer Co., ——, ——, 417 bags (ground lactic).
——, ——, ——, 17 bags.
C. M. Loeb Rhoades, ——, ——, 1275 bags (ground lactic).
Breakstone Bros., ——, ——, 1010 bags (ground lactic).
R. Whitehill, ——, ——, 289 bags (ground lactic).

Conference Held on Trucking Orders

A representative committee of the National Association of Waste Material Dealers, Inc., and the Institute of Scrap Iron & Steel Inc., held a conference in Washington on Friday, June 12th with officials of the Office of Defense Transportation, and presented in detail the difficulties which would face the Waste Material Industry if ODT Order No. 5 as it was originally drawn and amended should become effective against that Industry July 1.

The importance of conserving gasoline and tires is fully realized by both Organizations but at the conference emphasis was placed on the very great importance of getting into production every bit of available Scrap Rubber, Scrap Iron, Metals and other Secondary Raw Materials so much needed in connection with the prosecution of the War.

The Presidents of both the above associations, Mr. Barringer and Mr. Feinburg attended the conference which had been arranged by the managing director of the National Association of Waste Material Dealers, Inc., Chas. M. Haskins, who also attended. Others who attended were: Charles R. Ritter, Chairman, Transportation Committee, Institute of Scrap Iron and Steel; William Abramson, A. Abramson & Sons, Inc., Newark, N. J.; L. J. Kelleher, Southern Converting Company, Greensboro, N. C.; M. V. Wooster of the Robert Blank Company, New York. Questioned on their attitude to a plan which would give manufacturers a net on f.o.b. shipments equal to the present port and zone price for New York, they said they could not answer without study.

Union Bag Increases Wages

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., June 22, 1942—The Union Bag and Paper Corporation has announced a wage increase amounting to four cents an hour to its 1,400 employees as the result of an agreement between officials of the concern and representatives of the International Brotherhood of Papermakers. An official of the company stated that the increase in wages will amount to about $155,000 annually and all employees will be affected. It was also announced that all employees working for the concern at least a year will be granted a week's vacation with pay. The mills of the concern here are running with day and night shifts with prospects of continuing on these schedules for a long time. The force now being employed is reported to be the largest in the history of the concern and it is possible that further enlargements will be made in the near future.

Paper Stock Warehouse Burns

The Great Atlantic Paper Company's seven story building at 591 Washington street, New York, was destroyed by fire on June 20. Damage to paper stock alone was estimated by the concern at $200,000. Jack Galewitz, president of the concern, said that his company had no government orders, but that some of the paper had been intended for shipment to South America. Chief Fire Marshal Thomas P. Brophy described the paper as "printing and writing" papers. The company had occupied the loft for ten years and never had a fire, he said.

Official investigators agreed that the origin of the fire was electrical and accidental. Opinion inclined to the belief that an electrical circuit that feeds the Washington street buildings at that point had become overloaded.

The fire created a great pall of smoke over lower Manhattan and the falling north wall crushed a hook and ladder truck and nearly trapped several firemen. The fire was discovered shortly before noon and was under control at 2 P.M.

Goes with La Boiteaux Co.

Leif B. Norstrand has become associated with The LaBoiteaux Company as manager of the Pulp and Paper Division. He will be located at our New York Office, 2488 Grand Concourse, New York City.

Mr. Norstrand has had eighteen years experience in the pulp and paper business. After graduating from Dartmouth in 1924, he worked for the Saranac Pulp and Paper Company at Plattsburgh, N. Y., until 1930. His father sold that company to Berst-Foster Dixfield Company, a subsidiary of the Diamond Match Company. Mr. Norstrand continued with that company as manager of the Plattsburgh Mills until about 1934. He resigned to become associated with Johaneson, Wales & Sparre, Inc., New York City, importers of wood pulp, and with their successors Cellulose Sales Company, New York City.

In August, 1941, Mr. Norstrand formed his own company, The Lief Norstrand Company, Inc., to act as sole selling agent for the Williamson Pulp and Paper Company, Austin, Pennsylvania, which sole agency he now brings to The LaBoiteaux Company.

Fire Damages United Paper Board Mill

[FROM OUR REGULAR CORRESPONDENT]

THOMSON, N. Y., June 15, 1942—Fire breaking out early last week in a huge pile of waste paper at the mill of the United Paperboard Company did damage estimated at about $70,000. Hundreds of tons of water were thrown on the blaze which spread rapidly. The fire broke out several hundred feet from the mill and consequently no damage was done to the structure. The blaze was attributed to spontaneous combustion by officials of the company. The huge pile contained 3,500 tons of paper in a bin 250 feet long and sixty feet wide. Fire departments from many neighboring villages were rushed to the scene and crowds from miles around were attracted by the blaze. The huge scrap pile smouldered for a number of days before being fully extinguished.

"NON-USERS ARE THE LOSERS"

PROFIT PRODUCERS

TENAX FELTS

CONVENTION GOSSIP

Superintendents of paper and board mills tell one another about the long-lasting-service they keep getting from TENAX FELTS. The satisfaction they have had for years from these dependable producers, nowadays makes ardent TENAX boosters of them as their production problems increase.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY

Newfane, N. Y. — U.S.A.

BEATER CAPACITY INCREASED 133%

• Same number of beaters • No loss of freeness • Actual increase in tear strength and Mullen

THE BAUER DOUBLE-DISC PULPER MAKES IT POSSIBLE

If you operate beaters, you will be interested in what recently happened in an Ohio mill. Without using extra beaters this mill had to double their use of a particular grade of pulp. Increased jordaning was out because they had to preserve freeness and tearing strength.

They installed a 24" Bauer double-disc pulper powered with but two 50 H.P. motors. The result . . . increase in beater capacity from 6 tons per day to 14 and at the same time, an actual increase in tear strength.

These results are typical Bauer pulper results. For full operating details and performance characteristics of Bauer pulpers, write THE BAUER BROS. CO., SPRINGFIELD, OHIO.

Two Sizes . . . 24" and 36" Diameter Discs.

The BAUER BROS. CO.

SPRINGFIELD, OHIO

New York Paper and Pulp Market Review

Demand For Paper Less Active—Prime Grades of Chemical Wood Pulp Are Scarce—Waste Paper Market Soft With Sales of Major Lower Grades Reported Well Under Ceiling Prices.

Office of the PAPER TRADE JOURNAL
Wednesday, June 24, 1942.

An easy supply situation in many grades of paper is indicated in reports received this week from many manufacturers' representatives, jobbers, and general paper merchants. This situation has been developing for some weeks and the normal or trade demand for paper is expected to follow the trend in general business activity. As the maximum war effort in production has not yet been reached, the general decline in the production and consumption of many kinds of paper as well as other products for civilian uses, is expected to further decline.

The index of general business activity for the week ended June 13 rose to 131.4%, from 131.0% for the preceding week, compared with 130.0% for the corresponding week last year. Paper board production was 2.9% higher.

Paper production for the week ended June 13 was estimated at 88.2%, compared with 99.0% for 1941, with 91.9% for 1940, with 79.0% for 1939, and with 66.1% for the corresponding week for 1938.

Paper board production for the week ended June 13 was 72.0%, compared with 88.0% for 1941, with 79.0% for 1940, with 67.0% for 1939, and with 53.0% for the corresponding week for 1938.

Current wholesale business is quite widely reported approximately 10% under the volume at this date last year. Orders and shipments in June, 1941, were large under an exceptionally heavy speculative demand. Contrasting the current week with the like period last year, the trend now in general demand is declining, while last year general paper merchants were experiencing difficulty in obtaining deliveries to meet the unusually heavy demand for major grades of paper and paper board.

Newsprint is in adequate supply. Late reports from Canada indicate no shortage is impending and that no shortage in any grade of paper is foreseen.

Wood Pulp

Relative large requirements of the government for nitrating purposes and for lend-lease shipments, continues to create a scarcity in the prime grades of bleached sulphite. Practically no prime grades of unbleached sulphite are now reported available. There is little if any of the prime grades of bleached and unbleached sulphate available. Supplies of the news grade of unbleached sulphite are plentiful. An abundant supply of the lower grades of chemical wood pulp is quite widely reported at this date.

Rags

Demand for roofing rags is well maintained. A fair demand for mixed rags is reported at this date. Mill buying is reported widely at ceiling prices.

Old Rope and Bagging

Mill buying of old No. 1 Manila rope is well maintained at the ceiling price of $115.00 per ton.

Trading in scrap bagging is now subject to the General Maximum Price Regulation issued by the Office of Price Administration. Demand is moderate at this date.

Old Waste Paper

Declining consumption in new paper and paper board, declining mill demand, and less activity in collecting waste paper, has resulted in a lower supply. Activity in this market is reported slow. Prices are soft, with some reports indicating sales of No. 1 mixed paper at from $4 to $5 per ton; No. 1 news at from $6 to $7 per ton, and old corrugated at from $11 to $12 per ton, f.o.b. New York.

Twine

Conservation Order M-138, issued by the War Production Board on Istle and Istle Products, restricts an inventory in excess of a four month's supply of raw istle for civilian uses. Raw istle is defined as "unprocessed istle, including the types or grades commonly known as juamave, tula, palma and pita." An istle product is defined as "any product processed from raw istle, either alone or in combination with other fibers . . . yarn, twine, roving, cordage or waste istle."

J. H. Brewer Commissioned

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 22, 1942—John Howie Brewer, vice president and general manager, Storrs & Bement Company, has been commissioned as major in the Army Air Corps, reporting for duty at Lowry Field, Denver, Col., June 13. Mr. Brewer, who is 44 years old and a graduate of Phillips Exeter Academy, was with the Storrs & Bement Company from 1920 until 1942.

In 1919-1920, he was in the Department of Tests of the American Writing Paper Company, Holyoke, Mass. In 1917-18, he was Second Lieutenant, Aerial Observer in the Signal Reserve. He has been captain of Company I, 25th Infantry, Massachusetts State Guard from 1940 until the current year. Mr. Brewer, who has a host of friends, is a director of the Pneumatic Scale Corporation, Quincy, Mass.; the Redler Conveyor Corporation, Quincy, Mass.; the Pneumatic Scale Corporation, Canada, and the New England Paper Merchants Association, Inc. He is vice-president of the Paper House of New England, Springfield, Mass., National Paper Trade Association, Inc., and the Boston Paper Trade Association.

W. J. Blackley Recuperating

W. J. Blackley, vice-president and general sales manager of the Beveridge Paper Company, Indianapolis, Ind., is recuperating at his home after a serious abdominal operation performed at Saint Vincent's Hospital, Indianapolis on June 1.

National Paper Dyes

Whether you are called upon to duplicate a given sample or to produce a sheet to meet certain specifications, National Technical Service is prepared to assist by suggesting the proper stock composition and dyes that will meet your requirements.

Always feel free to call upon National Technical Service.

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET NEW YORK, N. Y.

BOSTON PHILADELPHIA GREENSBORO CHATTANOOGA
PROVIDENCE SAN FRANCISCO ATLANTA PORTLAND, ORE.
CHICAGO CHARLOTTE NEW ORLEANS TORONTO

DEPENDABILITY

LIKE OLD FAITHFUL YOU CAN DEPEND on

APPLETON FELTS

Paper Mills since 1890 have been depending on Appleton Felts, for they have come to learn by experience that Appleton Felts fully meet all requirements of mill production, year after year. Today's high speed production is met as easily as 1890's, because Appleton Felts have progressed with the rapid progress of the paper industry.

makes APPLETON FELTS good paper

APPLETON WOOLEN MILLS, APPLETON, WIS.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 24, 1942.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b., works. Demand reported good for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported moderate for the week. Bleaching powder is currently quoted at $2.25 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are unchanged for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 17 cents per pound; 80-100 mesh, at 17½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 15 cents per pound, c.i.f. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported good. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported fair at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market strong. Government demand is reported heavy during the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with higher prices on some grades. "G" gum rosin is currently quoted at $2.87 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $2.72 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.25 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand good for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton on improved salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported moderate for the current week. The commercial grades are currently quoted at from $1.15 to $1.25; iron free at from $1.75 to $1.85 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Carload Quantities			
* Delivered Prices			
Extra Quality	$6.00	@	$7.00
Superstandard	5.25	"	6.25
* No. 1 Wrapping	5.00	"	—
* Standard Bag	4.37½	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$40.25@$47.25	$41.40@$48.50
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	32.20 " 37.75
75% Rag	24.75 " 29.00	25.90 " 30.50
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00		
Unbl. Softwood Sulphite	64.00	@	66.00
Bl. Hardwood Sulphite	73.50		
Unbl. Hardwood Sulphite	63.50		
Bl. Mitscherlich	81.00		
Unbl. Mitscherlich	72.00		
N. Bleached Sulphate	86.00		
S. Bleached Sulphate	79.00		
N. Semi-Bleached Sulphate	82.00		
S. Semi-Bleached Sulphate	75.00		
N. Unbl. Sulphate	73.00		
S. Unbl. Sulphate	63.50		
Bl. Soda	66.00		
Unbl. Soda	62.00		
Groundwood	46.00		

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum price.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	8.00	"	8.25
Blue Overall	5.75	"	6.00
Fancy	3.00	"	3.25
Washables	2.50	"	2.75
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cuttings	3.00	"	3.15

Speed Your Production

NORWOOD CALENDERS
Will Give You Dependable Service
24 HOURS A DAY

YOU can depend on Norwood Calenders to help you speed your production . . . they are built to run at high speeds and give dependable service 24 hours a day. If your finishing room is your production bottle-neck, it will pay you to investigate the many improvements on modern Norwood Calenders. Among the many features you will find: Roll boxes that will stay set; fly roll bearings that can be adjusted to any angle; a new power-saving drive; continuous oiling system; specially designed bearings; and sound designing and sturdy construction. Send today for Engineering Data Units on Calenders.

WE CAN DELIVER We can still deliver your Calender within a reasonable length of time . . . but the sooner you place your order, the quicker you will get delivery. Place Your Order Now.

These Norwood Calenders are running 24 hours a day. The 73" machine in the foreground is operated at a speed of 900 feet per min.

Get a Good Start And a Good Finish With
NORWOOD
WATER FILTERS AND PAPER FINISHING MACHINERY

The Norwood Engineering Company
17 No. Maple St., Florence, Mass.

APPLETON WIRES
are Good wires

Appleton Wire Works, Inc. Appleton, Wis.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
* Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All prices nominal
New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	4.75
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	4.25	"	4.75
Sisal Strings	3.25	"	3.75
Mixed Strings	1.10	"	1.20

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)
OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Mixed Books	1.07½	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	1.75	"	—
Old Corrugated Containers	1.00	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1 — Repacked	3.80	"	—
White No. 2 — Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings— (Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)
OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)
OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	4.50	@	5.00
Sisal Rope	4.50	"	5.00
Mixed Rope	1.25	"	1.40
Transmission Rope—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	5.50
Jute Carpet Threads	3.25	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.50	"	—
Scrap Sisal	4.75	"	5.00
Scrap Sisal for Shredding	5.50	"	5.75
Wool Tares—			
Foreign	(nominal)		
Domestic	5.00	"	5.75
Aust. Wool Pouches	5.25	"	5.50
New Burlap Cuttings	5.50	"	5.75
Heavy Baling Bagging	4.75	"	5.00

Waste Paper

(F. o. b. Chicago)
OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.50	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.08	"	.08¼
New Light Flannelettes	.06	"	.06¼
Canton Flannel, Bleached	.08¼	"	.08½
Underwear Cutters, Bleached	.08	"	.08¼
Underwear Cutters, Unbleached	6.50	"	6.75
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03¾	"	.04
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.08¼	"	.08½
Blue Cheviots	.04¾	"	.05
Fancy	.02¾	"	—
Washable	.01¾	"	—
Cottons According to Grades—			
Blue Overalls	—	"	.05½
New Black, Soft	.03¾	"	.04
Khaki Cuttings	.04¾	"	.04¾
O. D. Khaki	.04½	"	.04¾
Corduroy	.02	"	.02¼
New Canvas	.06	"	.06½
B. V. D. Cuttings	.07¾	"	.08

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

No. 1 Heavy Books & Magazines	1.57	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 2 Roofing Rags	1.45	"	—

INDIANAPOLIS
JUL 1 194
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PAPER TRADE JOURNAL

SEVEN DAYS

JUNE 25, 1942

Established 1886

Perseverance

"There can be no solution without resolution, nor termination without determination."

ALLEN

We have ahead of us no royal road to success but instead a path rough-strewn with obstacles. Only by straining every fiber of our material and spiritual strength will VICTORY *grace our banner!*

Buy War Bonds.

GOTTESMAN & COMPANY

—INCORPORATED—

New York **Stockholm**

REPORT OF SUPERINTENDENTS' CONVENTION

DOWNINGTOWN

Downingtown Rubber Covered Suction Press Roll as used on Fourdrinier and Cylinder Machines.

MAINTENANCE HINTS

for "*Any*" Rubber Covered Suction Press

(1) Do not over-weight the roll at any time. Follow the pressures recommended by the machinery builders.

(2) When removing the weights at the time of a paper break, "all weights" should be "removed" from "both ends" at the "same time." Even a momentary running with pressure removed from one end only, might do serious damage to the opposite end, where the pressure would become excessive.

(3) Do not over-lubricate. Excess oil may overflow to the inside of the shell and run through the holes onto the rubber, causing a weakening of the rubber itself and damage to the bond.

(4) It is common practice to rope and wash felts on "plain" rubber covered press rolls, but many mills consider the risk too great with rubber covered "suction" press rolls. Some mills rope and wash their suction press felts by the following method, thereby reducing the hazard of damage:

(A) All weights and rods are removed from the top roll arms so that a free top roll rests on the felt.

(B) The felt is first washed with warm water only; then washed with a wool soap.

(C) The paper machine is operated at about 25% of its normal speed during the washing operation.

(D) The felt is not allowed to "bunch" in the usual manner as on plain presses, but is kept as flat and thin as possible.

P. S. Downingtown Suction Felt Rolls and other felt conditioners often make it unnecessary to wash a felt during its life . . . and, if you don't have such equipment, possibly it would be better to wear out a few extra felts rather than risk injuring an expensive rubber covered suction press.

DOWNINGTOWN MANUFACTURING COMPANY, DOWNINGTOWN, PA.